

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

INTERDIGITAL COMMUNICATIONS,)	
INC.; INTERGIDITAL TECHNOLOGY)	
CORPORATION; IPR LICENSING, INC.;)	
and INTERDIGITAL HOLDINGS, INC.,)	
)	C.A. No. 13-010 (RGA)
Plaintiffs,)	
)	REDACTED – PUBLIC VERSION
v.)	
)	JURY TRIAL DEMANDED
NOKIA CORPORATION and NOKIA INC.,)	
)	
Defendants.)	

ANSWER AND COUNTERCLAIMS TO AMENDED COMPLAINT

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ANSWER AND COUNTERCLAIMS TO AMENDED COMPLAINT

Defendants Nokia Corporation and Nokia Inc. (collectively “Nokia”) submit this Answer to the Amended Complaint filed by Plaintiffs InterDigital Communications, LLC, InterDigital Technology Corporation, IPR Licensing, Inc., and InterDigital Holdings, Inc. (collectively, “IDC”) on March 13, 2013 (D.I. 15, the “ Amended Complaint”). To the extent not specifically admitted in the following paragraphs, the allegations in the Amended Complaint are denied.

THE PARTIES

1. Nokia lacks knowledge or information sufficient to form a belief about the truth of the allegations of Paragraph 1, and, on that basis, denies them.
2. Nokia lacks knowledge or information sufficient to form a belief about the truth of the allegations of Paragraph 2, and, on that basis, denies them.
3. Nokia lacks knowledge or information sufficient to form a belief about the truth of the allegations of Paragraph 3, and, on that basis, denies them.

4. Nokia lacks knowledge or information sufficient to form a belief about the truth of the allegations of Paragraph 4, and, on that basis, denies them.

5. Nokia admits the allegations contained in Paragraph 5.

6. Nokia admits that Nokia Inc. is a Delaware corporation. Nokia denies the remaining allegations contained in Paragraph 6.

JURISDICTION AND VENUE

7. Nokia admits that the Complaint purports to arise under 35 U.S.C. § 271 *et seq.* To the extent that paragraph 7 states a legal conclusion, no response is required. To the extent a response is required, Nokia admits that this Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a). Nokia denies the remaining allegations of Paragraph 7 of the Complaint.

8. Nokia admits that the Complaint purports to assert venue under 35 U.S.C. § 1400(b). To the extent that paragraph 8 states a legal conclusion, no response is required. To the extent a response is required, Nokia will not contest venue in this Court.

9. Nokia admits that the Complaint purports to assert venue under 35 U.S.C. 1391(b), (c), (d) and 1400(b). To the extent paragraph 9 states a legal conclusion, no response is required. To the extent a response is required, Nokia will not contest venue or personal jurisdiction in this Court.

THE PATENT-IN-SUIT

10. Nokia admits that IDC asserts U.S. Patent Nos. 7,941,151 (“the 151 Patent”) and 8,380,244 (“the 244 Patent”) (collectively, “the Asserted Patents”) in this action.

11. Nokia admits that the 151 Patent is entitled “Method and System for Providing Channel Assignment Information Used to Support Uplink and Downlink Channels,”

and states that it was issued on May 10, 2011 to Marian Rudolf, Stephen G. Dick, and Phillip J. Pietraski. Nokia further admits that Exhibit A contains what IDC claims is a true and correct copy of the 151 Patent. Nokia lacks knowledge or information sufficient to form a belief about the truth of the remaining allegations of Paragraph 11, and, on that basis, denies them.

12. Nokia admits that the 244 Patent is entitled “Dual Mode Unit for Short Range, High Rate and Long Range, Lower Rate Data Communications,” and issued on February 19, 2013 to inventor Thomas E. Gorsuch. Nokia further admits that Exhibit B contains what IDC claims is a true and correct copy of the 244 Patent. Nokia lacks knowledge or information sufficient to form a belief about the truth of the remaining allegations of Paragraph 12, and, on that basis, denies them.

COUNT I

INFRINGEMENT OF THE '151 PATENT

13. Nokia incorporates by reference its responses to Paragraphs 1-12 of the Complaint as if fully set forth herein.

14. Nokia denies the allegations of Paragraph 14.

15. Nokia admits that it has received the Amended Complaint. Nokia denies the remaining allegations of Paragraph 15.

16. Nokia admits that certain of its products interoperate with 4G-based telecommunications systems that implement LTE (Long Term Evolution) features. Nokia denies the remaining allegations of Paragraph 16.

17. Nokia admits that it has received a copy of a complaint that IDC filed in the International Trade Commission on January 2, 2013. Nokia denies the remaining allegations of Paragraph 17.

18. Nokia denies the allegations of Paragraph 18.

19. Nokia denies the allegations of Paragraph 19.

COUNT II

INFRINGEMENT OF THE '244 PATENT

20. Nokia incorporates by reference its responses to Paragraphs 1-19 of the Complaint as if fully set forth herein.

21. Nokia denies the allegations of Paragraph 21.

22. Nokia admits that InterDigital's counsel informed Nokia of the 244 Patent on March 5, 2013. Nokia admits that it has received the Amended Complaint. Nokia denies the remaining allegations of Paragraph 22.

23. Nokia admits that certain of its products interoperate in 3G WCDMA, CDMA2000, and/or IEEE 802 systems. Nokia denies the remaining allegations of Paragraph 23.

24. Nokia admits that it has received a copy of InterDigital's motion to amend its complaint filed in the International Trade Commission on January 2, 2013. Nokia denies the remaining allegations of Paragraph 24.

25. Nokia denies the allegations of Paragraph 25.

26. Nokia denies the allegations of Paragraph 26.

JURY DEMAND

27. The allegations of Paragraph 27 do not require a response. Nokia demands a trial by jury on all issues so triable.

AFFIRMATIVE DEFENSES

Nokia hereby asserts the following defenses:

FIRST DEFENSE

Nokia does not infringe and has not infringed any valid and enforceable claim of the Asserted Patents literally, under the doctrine of equivalents, directly, indirectly, contributory, by way of inducement, and/or via any other mechanism of liability.

SECOND DEFENSE

Each of the claims of the Asserted Patents is invalid and/or unenforceable for failure to comply with one or more of the conditions for patentability set forth in Title 35 of the United States Code, including without limitation, Sections 101, 102, 103, and 112.

THIRD DEFENSE

InterDigital is barred, in whole or in part, by file wrapper and/or prosecution history estoppel based on statements, representations, and admissions made during the prosecution before the U.S. Patent & Trademark Office of the patent application that matured into the Asserted Patents.

FOURTH DEFENSE

InterDigital is barred, in whole or in part, from asserting the 151 Patent by delay in prosecuting the patent applications that matured into the 151 Patent. The 151 Patent claims benefit to a provisional application purportedly filed on November 18, 2003. InterDigital could have claimed the subject matter now recited in the claims of the 151 Patent at any time since the purported priority date of the 151 Patent.

InterDigital is barred, in whole or in part, from asserting the 244 Patent by delay in prosecuting the patent applications that matured into the 244 Patent. The 244 Patent claims benefit to a utility application purportedly filed on September 21, 1999. InterDigital could have

claimed the subject matter now recited in the claims of the 244 Patent at any time since the purported priority date of the 244 Patent.

FIFTH DEFENSE

InterDigital is barred from asserting the Asserted Patents by the equitable doctrine of patent misuse. InterDigital and Nokia are both members of the European Telecommunications Standardization Institute (“ETSI”), a standard-setting organization (“SSO”) promulgating standards in the telecommunications industry. The ETSI IPR Policy, which is binding on all members, requires members to disclose all intellectual property rights that the member holds which it believes are or may become essential to a proposed ETSI standard in a timely fashion. With respect to all patents so declared, the IPR Policy requires that members state whether they will license such patents on fair, reasonable and non-discriminatory (“FRAND”) terms. Through declarations made to ETSI and/or the International Telecommunications Union (“ITU”), InterDigital has explicitly declared that each of the Asserted Patents is essential to one or more 2G, 3G, and/or 4G standards and has committed to grant licenses to these patents on FRAND terms. In violation of this commitment, InterDigital has failed to provide Nokia a FRAND offer and to conclude a license on FRAND terms and conditions, and has initiated a United States International Trade Commission (“ITC”) investigation against Nokia asserting the 151 Patent and seeking an exclusionary order based on the alleged use of this patent. InterDigital has also moved the ITC for an order amending its complaint to add a count alleging infringement of the 244 Patent. The ITC Administrative Law Judge has yet to rule on InterDigital’s motion. InterDigital has taken these steps in spite of Nokia’s submission of offers on FRAND terms and conditions for a license that would include the Asserted Patents and Nokia’s statement that it is ready and willing to agree to FRAND

license terms for a license that would include the Asserted Patents to the extent that Nokia actually requires a license to the Asserted Patents (i.e., to the extent the Asserted Patents are valid, essential, and actually practiced by Nokia in relevant products).

SIXTH DEFENSE

InterDigital has breached undertakings that it made to ETSI and to ITU, and to Nokia as a third-party beneficiary of these undertakings, by failing to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions and seeking an exclusion order at the ITC blocking Nokia, a willing licensee, from importing standard-compliant products into the U.S. without offering the ability to have FRAND license terms determined by a competent authority.

SEVENTH DEFENSE

InterDigital's claims are barred in whole or in part under an actual license, under the doctrine of implied license, and/or under the doctrine of patent exhaustion. These licenses include, but are not limited to, express or implied licenses arising from InterDigital's participation in ETSI and ITU, as well as from InterDigital's commitments to grant licenses to the Asserted Patents on FRAND terms to willing licensees like Nokia, and to the extent that any allegedly infringing products or components thereof are supplied, directly or indirectly, to Nokia by any entity or entities having express or implied licenses to the patent-in-suit.

EIGHTH DEFENSE

The Asserted Patents are unenforceable due to the equitable doctrine of unclean hands based on InterDigital's breach of its undertakings to ETSI and ITU that it would grant licenses to the Asserted Patents on FRAND terms, its failure to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions, and its attempts at the ITC to block Nokia, a willing licensee, from importing certain products compliant with ETSI and ITU

standards into the U.S. without having offered the ability to have FRAND license terms determined by a competent authority. InterDigital has taken these steps in spite of Nokia's statement that it is ready and willing to agree to FRAND terms for a license that would cover the Asserted Patents to the extent that Nokia actually requires a license to the Asserted Patents (i.e., to the extent the Asserted Patents are valid, essential, and actually practiced by Nokia in relevant products).

NINTH DEFENSE

InterDigital's claims are barred in whole or in part due to the doctrines of equitable and promissory estoppel. InterDigital committed to grant licenses to the Asserted Patents on FRAND terms and has violated that commitment by its failure to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions, and its attempts at the ITC to block Nokia, a willing licensee, from importing certain products compliant with ETSI and ITU standards into the U.S. without having offered the ability to have FRAND license terms determined by a competent authority. Nokia relied to its detriment on InterDigital's commitments in adopting 3G, and 4G standards in products that InterDigital now seeks to exclude on the basis of their compliance with those standards, and in making continued investments in such products, and has suffered actual injury as a direct result of InterDigital's misconduct. InterDigital's claims are also barred based on its failure to comply with promises made to ETSI and ITU and manufacturers of products compliant with ETSI and ITU standards; Nokia's reliance on InterDigital's obligations to adhere to these SSOs' IPR policies; and Nokia's detriment because of InterDigital's failure to honor its obligations.

TENTH DEFENSE

InterDigital's claims are barred in whole or in part because, through its FRAND commitments made to ETSI and ITU, InterDigital knowingly waived its right to injunctive or other exclusionary relief against willing licensees and it has failed to offer FRAND terms and conditions and to conclude a license on such terms. In committing to grant irrevocable licenses to its declared-essential patents in exchange for FRAND compensation, InterDigital knowingly relinquished its right to injunctive relief against willing licensees for the alleged infringement of the Asserted Patents.

ELEVENTH DEFENSE

InterDigital is not entitled to injunctive relief, including without limitation, because any alleged injury to InterDigital is not immediate or irreparable, InterDigital has an adequate remedy at law, and/or public policy concerns weigh against injunctive relief under these circumstances.

TWELFTH DEFENSE

InterDigital cannot prove that this is an exceptional case justifying award of attorney fees against Nokia pursuant to 35 U.S.C. § 285.

THIRTEENTH DEFENSE

1. On information and belief, as alleged below, the 151 Patent, including all of the 151 Patent claims asserted against Nokia, is unenforceable under the doctrine of inequitable conduct.

2. In particular, during prosecution of the 151 Patent, at least two of the three named inventors, Marian Rudolf and Stephen Dick, deliberately withheld printed publications demonstrating that the subject matter of one or more claims of the 151 Patent was invented

earlier by other participants in the organization responsible for developing the LTE cellular standard. If those publications had been disclosed to the Patent and Trademark Office (PTO), as required by rules of PTO practice, one or more claims of the 151 Patent would not have been allowed.

3. Marian Rudolf, Stephen Dick and Phillip J. Pietraski are listed as inventors on the 151 Patent.

4. The 151 Patent claims priority to a provisional application filed on Nov. 18, 2003.

5. InterDigital Technology Corporation is identified as the assignee on the face of the 151 Patent.

6. Cellular standards, such as the LTE standard that InterDigital accuses of infringing the 151 Patent, are developed by “Standards-Setting Organizations” (SSOs), made up of participants from companies, such as InterDigital and Nokia, that do business in the cellular space.

7. Cellular standards are complex, and govern many aspects of the operation of cellular devices and cellular network equipment. Each section of a standard is developed by a “working group” with expertise in the technical field for that section. For example, certain working groups have expertise in the efficient use of the radio frequency spectrum, and contribute to the portions of the standard that include the RF specification. Other working groups have expertise in other areas, such as the way in which data is encoded for accurate and efficient transmission over the air.

8. The working group responsible for developing the portion of the LTE standard accused of infringing the 151 Patent is called TSG Radio Access Network Working Group 1 (“TSG-RAN Working Group 1”, hereinafter referred to as the “working group”) and the group

met on multiple occasions in 2002 and 2003 to discuss proposals for the standard under development at the time (high-speed uplink packet access). Prior to each such discussion, the members of the working group drafted written submissions outlining their proposals. Those submissions were distributed to all of the members of the working group, including representatives from InterDigital and at least two of the named inventors on the 151 Patent, Marian Rudolf and Stephen Dick.

9. Two of the named inventors, Marian Rudolf and Stephen Dick, also attended many of the Working Group 1 meetings that occurred just before the 151 Patent's claimed priority date. Marian Rudolf attended Working Group 1 meetings held on October 8, 2002, November 5, 2002, January 7, 2003, February 18, 2003, May 19, 2003, August 25, 2003, October 6, 2003, and November 7, 2003. *See* Exhibits 1-8. Stephen Dick attended Working Group 1 meetings on October 8, 2002, November 5, 2002, August 25, 2003, and November 7, 2003. *See* Exhibits 1, 2, 6, 8.

10. One of the issues addressed by Working Group 1 was how to efficiently assign network resources to multiple cellular devices, all of which need to send and receive data. *See* Exhibit 9.

11. A cellular network shares the available transmission "bandwidth" (i.e., the network's capacity for sending and receiving data) among multiple cellular devices. The allocation of bandwidth is under the control of the cellular network; when a cellular telephone wants to send and receive data such as emails or text messages, it must first ask the network for a share of the available bandwidth.

12. The network responds to the cellular telephone's request for bandwidth by sending messages on a special "channel" that is dedicated to sending "control" messages to

cellular telephones, sometimes referred to as a control channel.

13. In many cases, the control channel is shared by multiple cellular devices. When multiple cellular devices share a control channel, each device must be able to receive and interpret messages that are addressed to it. The 151 Patent explains how that was done for the downlink control channel in the version of the standard (Release 5) that predates the one accused of infringement in this investigation. In that previous version, called “HSDPA” the downlink control channel sent control messages out to multiple cellular devices, and distinguished among those devices by using a user specific identification. 151 Patent at 1:24–28, 1:54–55 (describing the prior art “HSDPA” method of identifying a specific “WTRU” (UE) in an HS-SCCH transmission, as part of “Release 5 (R5)” WCDMA systems). The user specific identification was used to mask a cyclic redundancy check (CRC) value. *Id.* This description of using a masked, device-specific CRC value is in the “Background” section of the specification of the 151 Patent, and was known in the prior art. *Id.* at 1:24–2:12 (discussing alleged problems with prior art cellular systems, including the prior art HS-SCCH system employing the WTRU-specific CRC value.).

14. It is possible to employ a first control channel for sending a message to a cellular device indicating when it is allowed to download data, also known as “downlink,” and a second control channel to instruct a cellular device when it may upload data, also known as “uplink.”

15. In late 2002 and early 2003, the working group discussed using a single control channel for sending messages to cellular devices about the assignment of both uplink and downlink bandwidth. The single control channel under discussion during that time period would also be shared by multiple cellular devices. It was therefore suggested that, when the network sent out messages on the control channel, each cellular device would successfully interpret only

those messages that are addressed to it.

16. In particular, in October, 2002, at a TSG-RAN Working Group 1 meeting attended by Marian Rudolf and Stephen Dick, Motorola submitted a proposal for how to use a single control channel to transmit control messages for both the uplink and downlink directions. *See Exhibit 10 [hereinafter the “Motorola Proposal”].* The Motorola Proposal is titled “Uplink enhancements for dedicated transport channels.”

17. The Motorola Proposal suggests using the control channel previously used for downlink transmissions—a control channel called the “HS-SCCH”—to send messages related both to downlink transmissions (on the downlink channel called the “HS-DSCH”) and to uplink transmissions (on an uplink channel called “EUDTC”). The relevant passage is as follows:

“6. Control channel design to support EUDTC:

One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH. The second option is to define a new set of control channels to support EUDTC operation. Finally, the third option is to use 10 msec frame size. Further, the design of control channels when the UE is in soft-handoff should be addressed.”

Motorola Proposal at 2 (emphasis added).

18. As can be seen from the underlined portion, the Motorola Proposal suggests “piggyback[ing]” the uplink control information onto the existing downlink control channel, thus sharing the same control channel for messages pertaining to transmission in the uplink and downlink directions.

19. The Motorola Proposal also defines how to do so: by having a frame format for transmissions pertaining to the uplink direction that is different from the format used for transmissions pertaining to the downlink direction: “This can be achieved by defining an

additional frame format for HS-SCCH and HS-DPCCH.”

20. Finally, the Motorola Proposal makes clear that it will “use the control channels for Rel-5 HS-DSCH” (i.e., the prior art “Release 5” version of the HSDPA standard) to distinguish between particular UEs receiving signals on the shared control channel. As discussed above in the context of the admitted prior art in the Background section of the 151 Patent, the control channel used to govern transmission on the “HS-DSCH” in Release 5 of HSDPA—the HS-SCCH—used a UE-specific CRC value.

21. In sum, the Motorola Proposal teaches using a single control channel for transmitting both uplink and downlink messages, distinguishing between uplink and downlink messages using different message “formats,” and identifying a specific recipient for the message by using a device-specific CRC value as specified in the previous “Release 5” version of the standard.

22. Marian Rudolf and Stephen Dick attended the Working Group 1 meeting at which the Motorola Proposal was presented and received copies of the Motorola Proposal. Marian Rudolf and Stephen Dick were aware as of October 2002 that the scheme of using a single control channel for both the uplink and the downlink, and distinguishing between uplink control transmissions and downlink control transmissions through the use of different message formats, was already invented by others. *See* Exhibit 1.

23. In January 2003, at a TSG-RAN Working Group 1 meeting attended by Marian Rudolf, Siemens submitted a proposal for how to use a single “control channel” to transmit messages to multiple cellular devices and grant individual cellular devices permission to transmit in the uplink and downlink directions. *See* Exhibit 11 [hereinafter the “Siemens Proposal”].

24. The Siemens Proposal discloses using a single control channel to send both uplink

and downlink control information. In particular, the Siemens Proposal suggests re-using the preexisting downlink control channel (the “HS-SCCH”) to send messages pertaining both to the downlink channel (the “HS-DSCH”) and to the uplink channel (the “EU-DCH”):

2. Re-use of HS-SCCH

Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel). Consequently, EU-SCCH uses also a 3-slot format and is time-aligned at Node B with HS-SCCH transmissions. This particular format for EU-DCH associated downlink control information allows the same shared control channel to be used for EU-DCH and HSDPA users in time multiplex.

Siemens Proposal at 1 (emphasis added).

25. Moreover, the Siemens Proposal points out that transmissions pertaining to the downlink direction can be distinguished from transmissions pertaining to the uplink direction by making use of pre-existing data structures used to store the “channelisation code-set field” which previously contained 7 bits of data representing the channelization code set. *Id.* By using a value for the channelization code set that was “unused” in the previous version of the standard, the Siemens Proposal allows the network to specify to a cellular device (referred to in the Siemens Proposal as “user equipment,” or “UE”) that the transmission relates to the uplink (EU-DCH) direction: “As shown in Fig. 1, the HS-SCCH part 1 provides 8 unused codewords within the channelisation code-set field (denoted as "redundant area" in Fig. 1, [1]), which could be used for EU-DCH downlink signalling.” *Id.* Figure 1 is a table showing the unused codes, in the “Redundant area”:

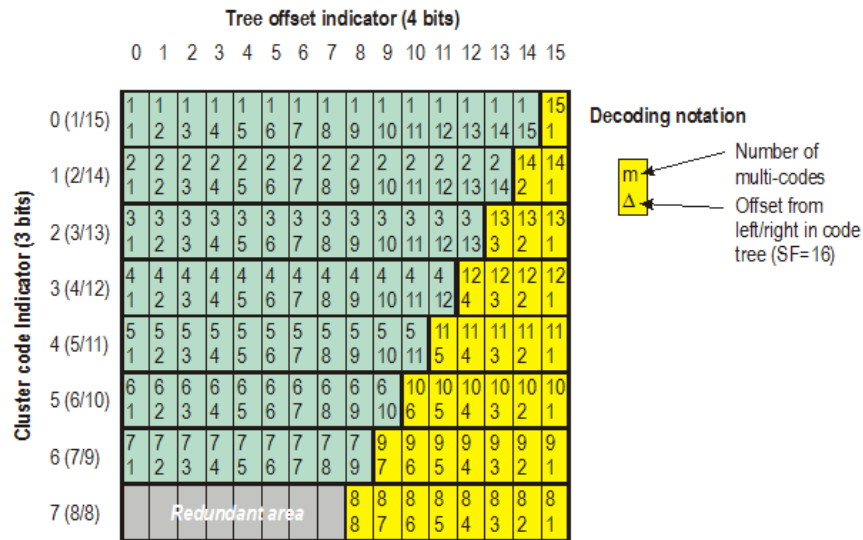


Fig 1: Reuse of the redundant area of HS-SCCH part 1 for downlink signalling of EU-DCH

26. Finally, the Siemens Proposal suggests using the pre-existing HS-SCCH coding format to specify the particular user equipment (“UE”) that is intended to receive the transmission. “A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2. As discussed above, as admitted in the Background section of the 151 Patent, the existing coding structure for HS-SCCH used a UE-specific CRC value that is generated from Part 1 and Part 2 of the HS-SCCH.

27. In sum, the Siemens Proposal teaches using a single control channel for both uplink and downlink messages, distinguishing between uplink and downlink messages using different message “formats,” and identifying a specific recipient for the message by using the preexisting coding structure of HS-SCCH, as specified in the previous HSDPA version of the standard.

28. Marian Rudolf attended the Working Group 1 meeting at which the Siemens Proposal was presented and received copies of the Siemens Proposal. Marian Rudolf was aware as of January 2003 that the scheme of using a single control channel for both the uplink and the downlink, by distinguishing between uplink control transmissions and downlink control transmissions through the use of the “unused” codewords in the previous version of the standard, was already invented by others. *See* Exhibit 3.

29. InterDigital filed a provisional application with the PTO on November 18, 2003. *See* Exhibit 12 [hereinafter the “Provisional Application”]. The Provisional Application is titled “Novel Resource Assignment Channel Configuration for Enhanced Uplink Operation.” *Id.* at 7.

30. Like the Motorola Proposal and the Siemens Proposal, the Provisional Application describes a way to use a single shared control channel to send transmissions pertaining to both the downlink and uplink directions: “The foregoing and other shortcomings of the prior art are resolved by providing a high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel: in a shared downlink (DL) radio resource space, and by distinguishing received high speed shared control channel (HS-SCCH) transmissions from uplink (UL) resource assignment channel transmissions.” Provisional Application ¶ 0018 (emphasis added here and in all cases below).

31. One of the preferred embodiments of the Provisional Application is identical in all relevant respects to the shared control channel described in the Siemens Proposal, and several embodiments use the Motorola Proposal’s approach to distinguishing between the uplink and downlink directions.

32. Both the Motorola Proposal and the Provisional Application describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e.,

the same transmissions used in the prior art Release 5 version of the standard) and UL Resource Assignment transmissions for the uplink. Likewise, both the Siemens Proposal and the Provisional Application describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art version of the HSDPA standard) and UL Resource Assignment transmissions for the uplink (emphasis added in all cases).

Provisional Application	Motorola Proposal	Siemens Proposal
<p>“The foregoing and other shortcomings of the prior art are resolved by providing a <u>high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel in a shared downlink (DL) radio resource space</u>, and by distinguishing received high speed shared control channel (HS-SCCH) transmissions from uplink (UL) resource assignment channel transmissions.” ¶ 0018.</p>	<p>“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to <u>piggyback</u> the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u>” Siemens Proposal at 1.</p>

33. In several embodiments of the Provisional Application, and in the Motorola Proposal, the UE can, in the phrasing used by the Provisional Application, “distinguish” between transmissions related to the downlink and transmissions related to the uplink by looking at the format of the frame transmitted on the shared control channel. In at least the first, second, and third disclosed embodiments of the Provisional Application, the direction for the control signal is specified by the frame format.

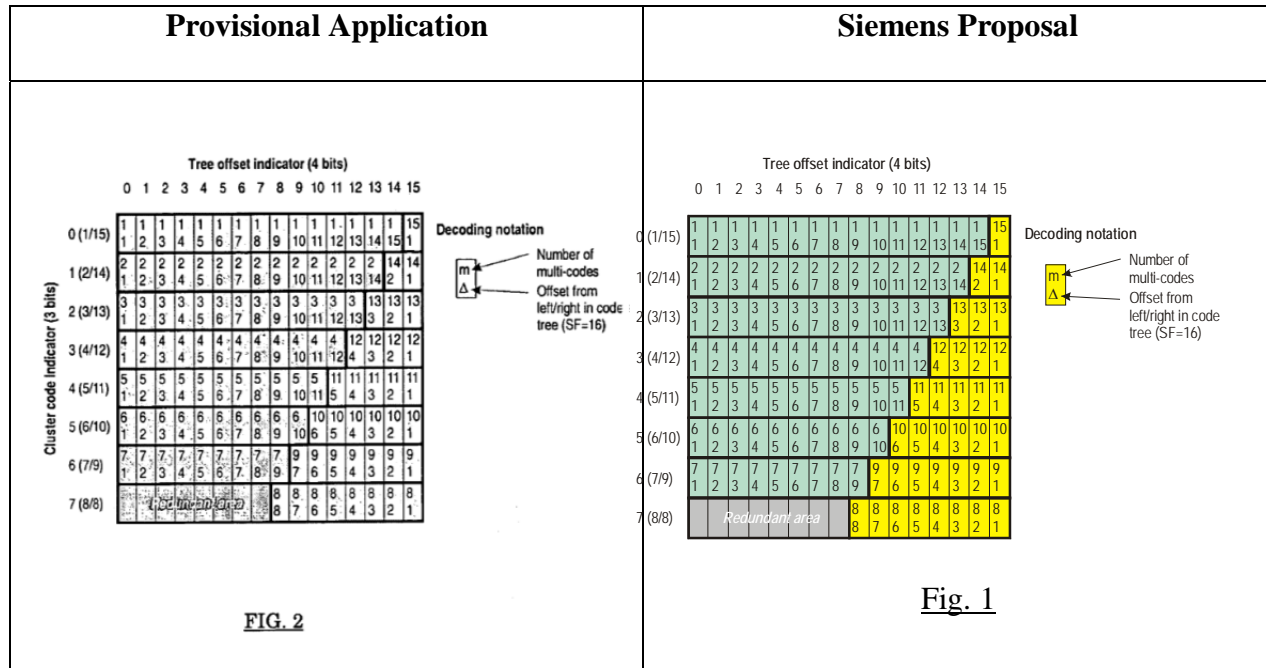
Provisional Application	Motorola Proposal
<p>“Pursuant to the techniques of the present invention, any of several methods may be employed <u>to distinguish HS-SCCH transmissions from UL Resource Assignment channel transmissions</u>. These methods include: (a) channel indication by means of selecting <u>one or more ‘impossible’ combinations in channelization code set mapping</u>, (b) inversion of UE-specific cyclic redundancy check (CRC), (c) utilizing different UE-specific masking sequences . . .” Provisional Application ¶ 0020; <i>see generally</i> ¶¶ 0033–0035 (describing “Method 1,” “Method 2,” and “Method 3” for distinguishing between the uplink and downlink channels).</p>	<p>“This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>

34. Likewise, in the first embodiment of the Provisional Application, and in the Siemens Proposal, the UE can distinguish between transmissions related to the downlink and transmissions related to the uplink by using special values in an unused field in the previous version of the HSDPA standard. Both the Provisional Application and the Siemens Proposal explain how this distinguishing can take place: by looking to see whether one of the fields of the transmission—the “channelisation code-set” field—is one of eight codewords that are “unused” or “impossible” in the prior art implementation:

Provisional Application	Siemens Proposal
<p>“Pursuant to the techniques of the present invention, any of several methods may be employed <u>to distinguish HS-SCCH transmissions from UL Resource Assignment channel transmissions</u>. These methods include: (a) channel indication by means of selecting <u>one or more ‘impossible’ combinations in channelization code set mapping</u> . . .” Provisional Application ¶ 0020; <i>see generally</i> ¶ 0033 (describing “Method 1” for distinguishing between the uplink and</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling</u>.” Siemens Proposal at 1.</p>

downlink channels, using “One or more ‘Impossible’ Combinations in the Channelization Code Set Mapping”).

35. Indeed, the figure used to depict the “impossible combinations” in the Provisional Application is copied and pasted from the figure used in the Siemens Proposal to depict the “8 unused codewords”:



36. Finally, in both the Motorola Proposal and the Siemens proposal, the shared downlink control channel relies on the same prior art method for confirming which UE a transmission is directed to that is used in the Provisional Application: using the user-specific identification in the same manner it was used in the preexisting HS-SCCH structure.

Provisional Application	Motorola Proposal	Siemens Proposal
<p>“Confirmation that a demodulated transmission is intended for the UE is obtained using a UE-specific CRC.” ¶ 0025.</p> <p>“The R5 HS-SCCH is sent . . .</p>	<p>“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC.</u> This can be achieved by defining</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used.”</p> <p>“A major benefit of the re-use</p>

along with a UE-specific cyclic redundancy check (CRC) (see 3GPP TS25.212).” ¶ 0008 (discussing the HS-SCCH in the prior art HSDPA system).	an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.	of HS-SCCH channel and coding format is that <u>the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission and receiver implementation is notably simplified.</u> ” Siemens Proposal at 1–2.
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37. Moreover, both the Provisional Application and the Siemens Proposal argue that transmitting uplink control messages on the same channel already used for downlink control messages has performance and efficiency benefits—namely, the UE can have reduced complexity and better performance because it only needs to monitor a single control channel.

Provisional Application	Siemens Proposal
<p>“In a straightforward extension of existing R5 mechanisms, UL Resource Assignment Channel's for FDD Enhanced UL could be introduced ‘on top’ of existing HS-SCCH's for HSDPA. In other words, a separate set of SF=128 DL channels are configured to contain one or more UL Resource Assignment Channels. With this approach, in a typical HSDPA operation scenario, a UE would then be required to monitor one or several UL Resource Assignment Channels in addition to the up to 4 HS-SCCHs it must already monitor.” ¶ 0014.</p> <p>“Relative to the prior art approaches described hereinbefore, a high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel that occupy a shared downlink (DL) radio resource space reduces UE complexity increases UE battery efficiency, and permits enhanced DL spreading code usage.” ¶ 0019.</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. . . . Additionally it decreases UE complexity, since less control channels need to be monitored in cases where HS-DSCH and EU-DCH are used concurrently.” Siemens Proposal at 1.</p>

38. Thus the Provisional Application, like the Motorola Proposal and the Siemens Proposal, describes using a single control channel for both uplink and downlink messages, distinguishing between uplink and downlink messages using different message formats (including, as in the Siemens Proposal, different values for the “channelization code set” field), and identifying a specific recipient for the message by using the pre-existing HS-SCCH coding structure, which included a device-specific CRC value. And the Provisional Application and the Siemens Proposal cite precisely the same benefits from doing so.

39. The Provisional Application also includes claims. Claim 1 purports to cover the process already disclosed in the Motorola Proposal and the Siemens Proposal:

1. A method for communicating with a user equipment (UE) over a wireless link comprised of a downlink (DL) and an uplink (UL), the method comprising the steps of:

(a) sharing at least a portion of the DL so as to provide a high speed shared control channel (HS-SCCH) and an UL resource assignment channel, and

(b) distinguishing received high speed shared control channel (HS-SCCH) transmissions from uplink (UL) resource assignment channel transmissions.

40. This claim recites the same basic three elements already discussed: a control channel for both “HS-SCCH” and “uplink (UL)” control messages; “distinguishing” transmissions related to the HS-SCCH from transmissions related to the uplink; and “sharing” the channel among multiple UEs. This claimed process is identical to what is disclosed in the Motorola Proposal and the Siemens Proposal.

41. InterDigital filed the nonprovisional application, which ultimately issued as the 151 Patent, on July 29, 2004. *See* Exhibit 13. Both the Motorola Proposal and the Siemens Proposal describe preferred embodiments of the 151 Patent. And like the Provisional Application, the 151 Patent includes material taken directly from the Siemens Proposal.

42. In particular, both the 151 Patent and the Motorola Proposal describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art Release 5 version of the standard) and UL Resource Assignment transmissions for the uplink. Likewise, both the 151 Patent and the Siemens Proposal describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art version of the HSDPA standard) and UL Resource Assignment transmissions for the uplink.

151 Patent	Motorola Proposal	Siemens Proposal
<p>“The WTRU communicates with the Node-B via a common control channel, the UL channel and the DL channel. The WTRU receives a message from the Node-B via the common control channel. The message includes an indication of whether the message is intended for assigning radio resources to the UL channel or the DL channel.” 2:20–25.</p> <p>“The Node-B 104 is configured to support an HSDPA and EU operation. Therefore, each Node-B 104 dynamically allocates radio resources for DL and UL transmissions to and from the WTRU 106 through an HS-DSCH and an EU channel, respectively. The radio resources assignment information for both the HS-DSCH and the EU is transmitted through the common control channel 112.” 3:33–39.</p>	<p>“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to <u>piggyback</u> the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u>” Siemens Proposal at 1.</p>

<p>“High speed downlink packet access (HSDPA) has been developed to increase downlink (DL) efficiency and throughput in universal mobile telecommunication system (UMTS) Release 5 (R5) wideband code division multiple access (W-CD MA) systems. . . . The signaling channel, a high speed shared control channel (HS-SCCH), conveys radio resource allocation information to a plurality of wireless transmit/receive units (WTRUs).” 1:33–36.</p>		
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43. In several embodiments of the 151 Patent, as in the Motorola Proposal, the UE can distinguish between transmissions related to the downlink and transmissions related to the uplink by looking at the format of the frame transmitted on the shared control channel. In at least the first, second, and third disclosed embodiments of the 151 Patent, the direction for the control signal is specified by the frame format.

151 Patent	Motorola Proposal
<p>“In accordance with a first embodiment of the present invention, an indication that a particular radio resource is assigned for a UL transmission is provided by means of one or more of the impossible combinations in the channelization code set mapping in a current HSDPA.” 3:51–55.</p> <p>“In accordance with the second embodiment of the present invention, this WTRU-specific CRC is modified in a unique and deterministic way to indicate that the demodulated transmission is for UL transmission, rather than DL transmission.” 4:13–16.</p>	<p>“This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>

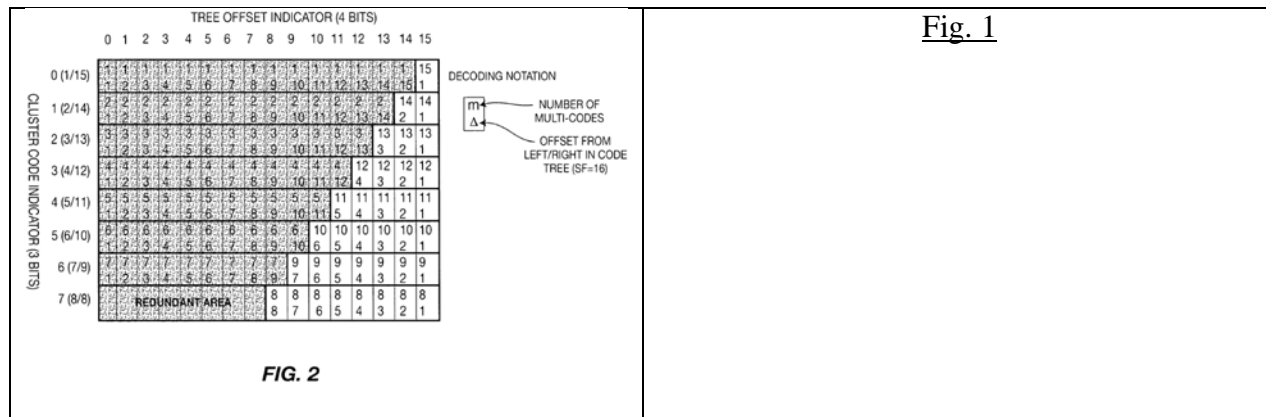
“In accordance with a third embodiment of the present invention, an indication that a particular radio resource is assigned for an EU is provided by means of a WTRU -specific masking sequence.” 4:28–31.

44. Also, as in the Siemens Proposal, the 151 Patent describes distinguishing between transmissions related to the downlink and transmissions related to the uplink, using the channelization code-set field.

151 Patent	Siemens Proposal
“In accordance with a first embodiment of the present invention, an indication that a particular radio resource is assigned for a UL transmission is provided by means of one or more of the impossible combinations in the channelization code set mapping in a current HSDPA. FIG. 2 is a look-up table for channelization code set mapping currently used in the HSDPA.” 3:51–57.	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u> ” Siemens Proposal at 1.

45. Figure 2 from the 151 Patent is carried over from Figure 2 of the Provisional Application, which in turn is taken from Figure 1 of the Siemens Proposal.

151 Patent	Siemens Proposal
	<p>Tree offset indicator (4 bits)</p> <p>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</p> <p>Cluster code indicator (3 bits)</p> <p>0 (1/15)</p> <p>1 (2/14)</p> <p>2 (3/13)</p> <p>3 (4/12)</p> <p>4 (5/11)</p> <p>5 (6/10)</p> <p>6 (7/9)</p> <p>7 (8/8)</p> <p>Decoding notation</p> <p>Number of multi-codes</p> <p>Offset from left/right in code tree (SF=16)</p> <p>Redundant area</p>



46. Finally, in both the Motorola Proposal and the Siemens proposal, the shared downlink control channel relies on the same prior art method for determining which UE a transmission is directed to that is used in the 151 Patent: preexisting structure of the HS-SCCH and specifically the use of user specific identification (UE-ID), which was used in the preexisting structure to mask the CRC.

151 Patent	Motorola Proposal	Siemens Proposal
<p>“In accordance with a second embodiment of the present invention, an indication that a particular radio resource is assigned for UL transmission is provided by means of a WTRU-specific CRC. <u>Under current HSDPA specifications</u>, a WTRU-specific CRC is contained in an HS-SCCH field 2. A 16-bit CRC is computed from the information to be transmitted, and the computed CRC is masked with a unique 16-bit WTRU identity (ID). The masked CRC is transmitted to a WTRU 106 as a WTRU-specific CRC.” 4:4–12.</p>	<p>“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC</u>. This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used.”</p> <p>“A major benefit of the re-use of HS-SCCH channel and coding format is that <u>the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission and receiver implementation is notably simplified.</u>” Siemens Proposal at 1–2.</p>

47. As with the Provisional Application, the 151 Patent argues that transmitting uplink control messages on the same channel already used for downlink control messages has the performance and efficiency benefits discussed in the Siemens Proposal—namely, the UE can have reduced complexity and better performance because it only needs to monitor a single control channel.

151 Patent	Siemens Proposal
<p>“Thus, it is possible to introduce a separate set of SF=128 DL channels as UL resource assignment channels. With this approach, a WTRU would be required to monitor one or more UL resource assignment channels in addition to the HS-SCCHs for an HSDPA operation. Although this approach is conceptually simple, there are many disadvantages with this scheme, such as WTRU complexity, WTRU battery efficiency, and DL spreading code usage.” 2:3–9 (describing disadvantages of using two separate control channels, which are alleged to be overcome by the claimed invention).</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. . . . Additionally it decreases UE complexity, since less control channels need to be monitored in cases where HS-DSCH and EU-DCH are used concurrently.” Siemens Proposal at 1.</p>

48. Moreover, at least asserted independent claims 1 and 16 purport to cover the process already disclosed in the Motorola Proposal and in the Siemens Proposal.

49. The Motorola Proposal and the Siemens Proposal disclose a control channel for both downlink and uplink channel assignment information:

Claims	Motorola Proposal	Siemens Proposal
<p>1. A method for utilizing channel assignment information for an uplink shared channel or a downlink shared channel, the method comprising: a wireless transmit/receive unit (WTRU)</p>	<p>“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC</u>. This can be achieved by defining</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and</p>

receiving downlink control information including downlink or uplink channel assignment information via a same physical downlink control channel, both downlink channel assignment information and uplink channel assignment information being received via the same physical downlink control channel;	an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.	HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u> ” Siemens Proposal at 1.
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Claims	Motorola Proposal	Siemens Proposal
16. A wireless transmit/receive unit (WTRU) for utilizing channel assignment information for an uplink shared channel or a downlink shared channel, the WTRU comprising: a receiver configured to receive downlink control information including downlink or uplink channel assignment information via a same physical downlink control channel, both downlink channel assignment information and uplink channel assignment information being received via the same physical downlink control channel;	“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC.</u> This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.	“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u> ” Siemens Proposal at 1.

50. The Motorola Proposal and the Siemens Proposal disclose “determining” whether the downlink control information is intended for the UE:

Claims	Motorola Proposal	Siemens Proposal
1. ...the WTRU determining whether the downlink control information is intended for the	“One of the options for control channel design of EUDTC is to use the control channels for	“A further simplification of the UE implementation is possible if exactly the coding

WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).	format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for <u>HSDPA</u> and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).
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Claims	Motorola Proposal	Siemens Proposal
16. ... a controller configured to determine whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for <u>HSDPA</u> and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2; <i>see</i> at 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

51. As discussed above, it was known in the admitted prior art (described in the 151 Patent) that the existing “HSDPA” specifications use a WTRU-specific CRC in the “HS-SCCH”

channel to identify transmissions intended for a particular WTRU.

Claims	Meaning of “HSDPA” to a Person of Ordinary Skill in the Art
1. ...the WTRU determining whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“Under current HSDPA specifications a WTRU-specific CRC is contained in an HS-SCCH field 2.” 151 Patent 4:7–8; <i>id.</i> 1:49–55 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU); <i>id.</i> 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

Claims	Meaning of “HSDPA” to a Person of Ordinary Skill in the Art
16. ... a controller configured to determine whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“Under current HSDPA specifications a WTRU-specific CRC is contained in an HS-SCCH field 2.” 151 Patent 4:7–8; <i>id.</i> 1:49–55 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU); <i>id.</i> 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

52. The Motorola Proposal and the Siemens Proposal disclose “determining” whether the channel assignment information is for uplink or downlink and utilizing that information.

Claims	Motorola Proposal	Siemens Proposal
1. ... if so determining whether the channel assignment information is for assigning radio resources for the uplink shared channel or the downlink shared channel; and the WTRU utilizing the radio resources for the uplink shared channel or the downlink shared channel.	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining <u>an additional frame format for HS-SCCH and HS-DPCCH.</u> ” Motorola Proposal at 2.	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field

		(denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u> ” Siemens Proposal at 1.
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Claims	Motorola Proposal	Siemens Proposal
16. ... determine whether the channel assignment information is for assigning radio resources for the uplink shared channel or the downlink shared channel, and utilizing the radio resources for the uplink shared channel or the downlink shared channel.	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining <u>an additional frame format for HS-SCCH and HS-DPCCH.</u> ” Motorola Proposal at 2.	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u> ” Siemens Proposal at 1.

53. On information and belief, but for the applicants’ deliberate decision to withhold the Motorola Proposal and the Siemens Proposal from the 151 Patent examiner, the PTO would not have allowed at least asserted claims 1 and 16 of the 151 Patent. The Motorola Proposal and the Siemens Proposal, by themselves or in combination with the admitted prior art, disclose each and every element of these claims—indeed, the Siemens Proposal teaches the specific method of distinguishing between uplink and downlink used in an embodiment of the 151 Patent, and describes that method using precisely the same figure.

54. On information and belief, the decision to withhold the Motorola Proposal and the Siemens Proposal was deliberate, and made with fraudulent intent. At least inventors Marian Rudolf and Stephen Dick were specifically aware of the Motorola Proposal, as they attended the Working Group 1 meeting at which the Motorola Proposal was presented. At least inventor

Marian Rudolf was specifically aware of the Siemens Proposal, as he attended the Working Group 1 meetings at which the Siemens Proposal was presented. In addition, 3GPP working group documents for any given meeting are distributed prior to the meeting to the appropriate working group or to those persons registered as regular participants—including other named inventors on the 151 Patent. Given that multiple inventors were actively involved with TSG-RAN Working Group 1 and regularly attended Working Group 1 meetings, they were clearly aware of the Siemens Proposal and the Motorola Proposal.

55. The inventors' awareness of the Motorola Proposal is also evident from the inclusion of a related Motorola submission in the cited prior art for the 151 Patent. In particular, the cited prior art for the 151 Patent includes a publication titled "3GPP TSG RANWG 1 Tdoc R1-02-1350, Motorola, 'Design Considerations for Enhanced Uplink Dedicated Channel,' Shanghai, China, Nov. 2002." 151 Patent at Page 2. The 1350 proposal cites the Motorola Proposal discussed above. *See* Exhibit 14 at 1, 5.

56. The inventors' awareness of the Siemens Proposal is also evident from the Provisional Application and the specification of the 151 Patent themselves, which (as already discussed) take the idea of using the "unused" values of the channelization code-set field and the figure used to illustrate that idea directly from the Siemens Proposal.

57. On information and belief, knowing that disclosing the Motorola Proposal and /or the Siemens Proposal would prohibit obtaining a patent, at least inventor Rudolf and inventor Dick made the conscious choice not to disclose the prior art to the PTO. The inventors disclosed several working group documents to the Examiner from other meetings attended by the inventors and occurring around the same time as the Motorola Proposal and the Siemens Proposal—including the related 1350 proposal—but at least Marian Rudolf and Stephen Dick chose not to

disclose the Motorola Proposal and the Siemens Proposal to the PTO.

58. For example, both Marian Ruldolf and Stephen Dick attended the Working Group 1 meeting in Shanghai, China, held November 2002, and disclosed the following working documents associated with this meeting to the PTO: (1) Tdoc R1-02-1277, Nokia, "Two Threshold Node B Packet Scheduling," Shanghai, China, Nov. 2002; (2) Tdoc R1-02-1350, Motorola, "Design Considerations for Enhanced Uplink Dedicated Channel," Shanghai, China, Nov. 2002; and (3) Tdoc R1-02-1277, Nokia, "Two Threshold Node B Packet Scheduling," Shanghai, China, Nov. 2002. *See* Exhibit 2. However, Marian Rudolf and Stephen Dick attended the Working Group 1 meeting preceding the Shanghai meeting, held October 2002 in Espoo, Finland, and chose not to disclose the highly relevant Motorola Proposal. And Marian Rudolf attended the Working Group 1 meeting following the Shanghai meeting, held January 2003 in San Diego, California, and chose not to disclose the highly relevant Siemens Proposal. *See* Exhibit 3.

59. The deliberate choice by at least Marian Rudolf to use material taken from the Siemens Proposal in the first described embodiment of the 151 Patent, and the choice to disclose to the USPTO other Working Group materials while withholding the Siemens Proposal, demonstrate fraudulent intent. The deliberate choice of at least Marian Rudolf and Stephen Dick to disclose certain Working Group submissions, including the 1350 proposal, while withholding the directly relevant Motorola Proposal, demonstrates fraudulent intent. The pattern of withholding multiple prior art references that disclose the use of a single control channel and the other requirements of at least claims 1 and 16 of the 151 Patent further demonstrates fraudulent intent. On information and belief, the inventors, including at least Marian Rudolf and Stephen Dick, withheld the Motorola Proposal and the Siemens Proposal with the intent of hiding from

the PTO that the alleged inventions of at least claims 1 and 16 of the 151 Patent were not invented by the named inventors, but rather were taken from the prior work of others. As discussed above, but for the inventors' failure to disclose the Motorola Proposal and the Siemens Proposal, at least claims 1 and 16 of the 151 Patent would not have issued.

60. Nokia is continuing to obtain and review information related to the large family of U.S. and foreign patents and publications related to the asserted patent, and accordingly, Nokia intends to set forth further allegations regarding the inequitable conduct associated with the procurement of the asserted patent as discovery continues.

RESERVATION OF RIGHTS

In filing these defenses, Nokia has not knowingly or intentionally waived any applicable defenses. Nokia reserves the right to assert and rely upon any other applicable defenses that may become available or apparent during the course of this action. Nokia reserves the right to amend or to seek to amend its answer or affirmative defenses.

COUNTERCLAIMS FOR BREACH OF CONTRACT, DECLARATORY JUDGMENT, DECEPTIVE TRADE PRACTICES, AND UNFAIR COMPETITION

1. Pursuant to Federal Rule of Civil Procedure 13, Nokia Corporation and Nokia Inc. (collectively "Nokia") file these Counterclaims for breach of contract, declaratory relief, and deceptive and unfair trade practices against Plaintiffs InterDigital Communications, Inc., InterDigital Technology Corporation, IPR Licensing, Inc., and InterDigital Holdings, Inc., (collectively "InterDigital"). In support thereof, Nokia shows as follows:

JURISDICTION AND VENUE

2. This Court has supplemental jurisdiction over these counterclaims under 28 U.S.C. § 1367 because Nokia's counterclaims are related to InterDigital's claims raised in this

action. This court has jurisdiction over the state law claims discussed herein because Nokia's state law claims arise from a common nucleus of operative fact as the federal claims raised herein.

3. InterDigital has subjected itself to personal jurisdiction by suing Nokia within this District. Personal jurisdiction is also proper because, on information and belief, all Plaintiffs are incorporated within the state of Delaware and because Plaintiffs InterDigital Technology Corporation, IPR Licensing, Inc., and InterDigital Holdings, Inc. have their principal places of business within the state Delaware.

4. Venue is proper in this District under 28 U.S.C. § 1391.

NATURE OF THE COUNTERCLAIMS

5. InterDigital's lawsuit against Nokia is not simply a claim for patent infringement. Rather, it is the latest step in a multi-year campaign to (i) flout binding and enforceable contract commitments obligating InterDigital to grant Nokia a license on terms that are fair, reasonable, and non-discriminatory ("FRAND"); and (ii) coerce Nokia into paying excessive royalties on Nokia's worldwide sales (including in countries where Nokia has successfully demonstrated the weakness of InterDigital's portfolio and countries where InterDigital has no patents whatsoever). InterDigital has voluntarily committed to license its patents, including the patents at issue in this action, on FRAND terms. Courts have repeatedly held that this commitment rises to the level of a binding and enforceable contract to (i) grant licenses on FRAND terms and conditions; and (ii) refrain from enjoining parties who are willing to take a license and pay FRAND compensation for utilizing declared-essential patents. *See Microsoft Corp. v. Motorola, Inc.*, 854 F. Supp. 2d 993, 999 (W.D. Wash. 2012); *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 914 (N.D. Ill. 2012). Rather than honor its contractual

commitments, InterDigital has resorted to seriatim lawsuits in the International Trade Commission, where the sole remedy for any finding of infringement is an injunction (referred to as an exclusion order), precisely the relief that InterDigital contractually agreed to forego against willing licensees. Nokia's counterclaims seek redress for InterDigital's breach of its contractual agreements.

6. InterDigital is not a manufacturer of any products; its sole business is the licensing of its patents. InterDigital's breaches of its contractual commitments have aided it in unjustly exerting undue leverage in negotiations with Nokia due to the threat of an ITC exclusion order (the sole remedy obtainable in an ITC proceeding because the ITC cannot set FRAND license terms and conditions). This is leverage that InterDigital contractually agreed not to employ against willing licensees like Nokia. InterDigital's contractual obligation to Nokia stems from specific written commitments InterDigital made to ETSI and the ITU, which are standard-setting organizations for the telecommunications industry, for the benefit of Nokia and other telecommunications industry participants.

7. ETSI and the ITU are standard setting organizations ("SSO's") that exist to standardize wireless telephone equipment and networks and to ensure that cellular telephone equipment from one manufacturer is interoperable with that of another manufacturer as well as wireless services provided by carriers worldwide. InterDigital and Nokia are both members of ETSI and the ITU and, as members, have agreed to comply with these organizations' rules and bylaws.

8. In the context of standard-setting activities, patents that must be practiced in order to comply with an SSO standard are referred to as "essential" patents, and ETSI and the

ITU require their members to “declare” (i.e., disclose) any patents that they believe to be essential to any given standard.

9. After filing an initial ITC Complaint against Nokia in August 2007 asserting several declared-essential patents and another ITC complaint against Nokia in July 2011 asserting additional declared-essential patents, along with parallel federal lawsuits in each instance, InterDigital has now initiated a third ITC investigation against Nokia and has filed this action in connection therewith. The patents asserted in these three investigations are U.S. Patent Nos. 7,190,966, 7,286,847, 6,973,579, 7,117,004, 7,349,540, 7,502,406, 7,536,013, 7,616,970, 7,706,332, 7,706,830, 7,970,127, 8,009,636, 7,941,151, and 8,320,244 (the “Combined Asserted Patents”). InterDigital has declared each of the Combined Asserted Patents essential to second generation, third generation, and/or fourth generation wireless standards, including U.S. Patent Nos. 7,941,151 and 8,380,244 (the “Asserted Patents”) asserted in the present action, by submitting to ETSI an “IPR Information Statement and Licensing Declaration” or by submitting a “Patent Statement and Licensing Declaration” to the ITU.

10. In its declarations to ETSI, InterDigital irrevocably agreed to grant manufacturers of products compliant with the ETSI standards, including Nokia, a license to the declared patents, including the Combined Asserted Patents, on FRAND terms.

11. InterDigital’s declarations to ETSI for its declared-essential patents create binding and enforceable contracts with regard to each such patent, governed by French law. InterDigital has breached these contracts.

12. In its declarations to the ITU, InterDigital agreed to grant licenses to an unrestricted number of applicants on a non-discriminatory basis and on reasonable terms and conditions (“RAND”, referred to collectively with FRAND as “FRAND”).

13. InterDigital's declarations to the ITU create a binding and enforceable contract with regard to each declared patent. InterDigital has breached these contracts.

14. InterDigital has breached its contractual obligations with regard to the Combined Asserted Patents by initiating three United States International Trade Commission investigations (the "ITC Investigations") against a willing licensee such as Nokia using the Combined Asserted Patents, including the 151 Patent and seeking to use the 244 Patent asserted in this case, and by seeking exclusion orders at the ITC blocking Nokia from importing standard-compliant handsets into the United States – all without having offered the ability to have FRAND license terms determined by a competent authority. InterDigital is pursuing this relief at the ITC, which cannot establish FRAND license terms between the parties, in blatant contravention of its irrevocable agreement to license the Combined Asserted Patents to manufacturers of standard-compliant product like Nokia that are willing to take a license on FRAND terms and to accept FRAND license terms for the use of this patent by such willing licensees. Such an exclusion order by the ITC would result in a significant loss by Nokia of market share, sales, brand recognition, and customer loyalty.

15. Second, InterDigital has breached its obligations [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] InterDigital has also breached its FRAND obligations [REDACTED]

[REDACTED]

16. Nokia has informed InterDigital that it is ready and willing to agree to FRAND license terms for the Combined Asserted Patents and InterDigital's other FRAND-

encumbered U.S. patents to the extent that Nokia actually requires a license to such patents (i.e., to the extent they are valid, essential, and actually practiced by Nokia in relevant products). Given Nokia's willingness to agree to FRAND license terms, and because InterDigital contractually agreed that it would license the Combined Asserted Patents to manufacturers like Nokia on FRAND terms, InterDigital necessarily agreed to forego its right to pursue a remedy like an ITC exclusion order against manufacturers of standard-compliant products like Nokia that are ready and willing to take a FRAND license to any valid patents they may actually practice.

17. InterDigital's misconduct has forced Nokia to defend itself in several ITC Investigations at great cost in terms of time and expense, and has also exposed Nokia to the potential threat that the ITC could exclude Nokia mobile phones from importation into the United States. As these Investigations continue, InterDigital will continue to attempt to leverage the potential threat of an ITC exclusion order into supra-competitive royalties for its patents in licensing negotiations, which is exactly the harm that the FRAND commitment was designed to prevent.

FACTUAL BACKGROUND

1. The Role of Standard Setting Organizations

18. InterDigital's contractual agreements to let manufacturers like Nokia practice declared-essential patents including the Combined Asserted Patents under a license on FRAND terms arise, in part, out of its membership in ETSI, a European SSO for wireless technologies, as well as its membership in the ITU, the United Nations' agency for information and communication technologies. Mobile phones are sophisticated electronic devices that function by communicating with a network of cellular base stations operated by wireless carriers like AT&T and T-Mobile in the United States. For a mobile phone to have any value to a

consumer, each component of a cellular network must be capable of working with all the other components, regardless of which company made the component. Interoperability of mobile phones is crucial for their success, because consumers would cease buying mobile phones if a Nokia mobile phone could not communicate with a cellular base station manufactured by Ericsson or Nortel.

19. The purpose of SSOs such as ETSI and the ITU is to allow companies to come together and agree on ways to make their products interoperable. To do so, members work together to develop technical “standards” – agreed-upon protocols that create a common design for a technical function. If a mobile phone manufacturer follows a given standard, any standard-compliant mobile phone should successfully communicate with any other standard-compliant mobile phone or any standard-compliant network equipment utilized by the wireless carrier. Only if each component follows the applicable standards will the components work seamlessly with each other. Patents that are necessary to the proper functioning of the standard are known as “essential” patents.

20. Despite the many benefits of standardization, it also carries risks. It is difficult and costly to agree on and implement a new standard. Once a standard has been agreed upon, any company that owns a patent that is truly essential to the standard suddenly has significant market power. The reason is simple: if a company wants to manufacture a standard-compliant product, it would likely need to use patents that are essential to the standard. If the owner of an essential patent were to potentially block manufacturers of standard-compliant products with an injunction, then the patent owner could effectively “hold up” an entire industry and demand unreasonably high royalty rates, taking advantage of the high cost of switching to another standard and the sunk costs of investing in the standard in addition to the reasonable

value of the patent. Moreover, once a patented technology is included in the standard, the owner of that patent suddenly has access to a much larger base of licensees from which to collect royalties, namely every company that wants to manufacture a standard-compliant product. If there were no standardization, and technical solutions were fragmented among various competing technologies, then a patent holder would only receive royalties from manufacturers that chose to use the patent holder's proprietary and patented technology.

21. Seeking to avoid the hold-up risk, SSOs have adopted various mechanisms to ensure that patent litigation – and more specifically, potential injunctions – do not cripple development and use of their standards. The goal of these mechanisms is set forth in Article 3.1 of the ETSI IPR policy:

It is ETSI's objective to create STANDARDS and TECHNICAL SPECIFICATIONS that are based on solutions which best meet the technical objectives of the European telecommunications sector, as defined by the General Assembly. In order to further this objective the ETSI IPR POLICY seeks to reduce the risk to ETSI, MEMBERS, and others applying ETSI STANDARDS and TECHNICAL SPECIFICATIONS, that investment in the preparation, adoption and application of STANDARDS could be wasted as a result of an ESSENTIAL IPR for a STANDARD or TECHNICAL SPECIFICATION being unavailable. In achieving this objective, the ETSI IPR POLICY seeks a balance between the needs of standardization for public use in the field of telecommunications and the rights of the owners of IPRs.

22. ETSI adopted a system with both mandatory and voluntary components. Under the mandatory component, ETSI requires members to take reasonable steps, especially during the development of a standard, to inform ETSI of essential IPRs in a timely fashion. Article 4.1 of the ETSI IPR Policy specifically provides that:

[E]ach MEMBER shall use its reasonable endeavors, in particular during the development of a STANDARD or TECHNICAL SPECIFICATION where it participates, to inform ETSI of ESSENTIAL IPRs in a timely fashion. In particular, a MEMBER submitting a technical proposal for a STANDARD or

TECHNICAL SPECIFICATION shall, on a bona fide basis, draw the attention of ETSI to any of that MEMBER's IPR which might be ESSENTIAL if that proposal is adopted.

23. Under the voluntary portion of ETSI's IPR policy, ETSI requests (but does not require) that a holder of a declared-essential patent make a voluntary – yet binding – commitment that the patent holder will grant a license to its declared-essential patent on FRAND terms. This voluntary request by ETSI for a binding commitment from the patent holder is set out in Section 6.1 of the ETSI IPR Policy, which provides as follows:

When an essential IPR relating to a particular standard or technical specification is brought to the attention of ETSI, the director-general of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licenses on fair, reasonable, and non-discriminatory terms and conditions . . .

24. Because the FRAND licensing requirement is voluntary and not mandatory, the ETSI IPR Policy provides for those instances where a patent holder refuses to permit manufacturers to use its declared-essential patent or is unwilling to limit its terms for use of the patent to FRAND terms. The ETSI IPR Policy takes such refusals seriously and requires that the ETSI General Assembly search for a “viable alternative technology” which “is not blocked by that IPR” and which “satisfies ETSI's requirements.” ETSI IPR Policy § 8.1.1.

25. Similarly, the ITU's Common Patent Policy requires that holders of declared essential patents must provide declarations that they are willing to negotiate licenses either “free of charge” or “on a non-discriminatory basis on reasonable terms and conditions.” Where a patent holder refuses to make such a declaration and indicates that it is not willing to license under FRAND terms, “the Recommendation / Deliverable shall not include provisions depending on the patent.”

26. InterDigital has declared to ETSI and/or the ITU that the Combined Asserted Patents are essential to ETSI's or the ITU's second generation, third generation, or fourth generation standards by providing written, irrevocable undertakings to permit manufacturers of standard-compliant products (like Nokia) to practice its declared-essential patents including the Combined Asserted Patents on a FRAND basis. InterDigital has made similar declarations for a number of InterDigital's other U.S. patents.

2. Committing to License on FRAND Terms Creates a Contractual Obligation.

27. When a patentee such as InterDigital voluntarily commits to allow manufacturers willing to take a license on FRAND terms to practice its declared-essential patents under FRAND terms and conditions, it is not simply making a symbolic gesture. To the contrary, agreeing to permit use of the declared-essential patent on FRAND terms creates clear and legally enforceable contractual rights and obligations.

28. ETSI is based in Sophia-Antipolis, France. French law governs the interpretation of the ETSI IPR Policy and contractual rights and obligations arising therefrom. According to Article 12 of the ETSI IPR Policy:

The POLICY shall be governed by the laws of France. However, no MEMBER shall be obliged by the POLICY to commit a breach of the laws or regulations of its country or to act against supranational laws or regulations applicable to its country insofar as derogation by agreement between parties is not permitted by such laws. Any right granted to, and any obligation imposed on, a MEMBER which derives from French law and which are not already contained in the national or supranational law applicable to that MEMBER is to be understood as being solely contractual in nature.

29. In addition, certain IPR Information Statements and Licensing Declarations submitted by InterDigital to ETSI for its declared-essential patents specifically state

on their face that “the construction, validity and performance of this IPR information statement and licensing declaration shall be governed by the laws of France.”

30. Under French law, InterDigital’s written undertaking to ETSI creates a *stipulation pour autrui* — a stipulation in favor of a third party. In a *stipulation pour autrui*, the promisor commits to the stipulator to grant a right to one or more beneficiaries. The promisor becomes contractually bound to the stipulator as soon as it makes its promise, and may not later withdraw its stipulation.

31. In the ETSI context, a patent holder who makes a written undertaking to ETSI stating that it is prepared to grant irrevocable licenses on FRAND terms is making a contractual commitment. Specifically, by submitting a FRAND undertaking to ETSI, a patent holder becomes (i) contractually bound to ETSI; (ii) for the benefit of third party beneficiaries; (iii) to license its declared-essential patent on FRAND terms in accordance with Article 6.1 of the ETSI IPR Policy. Under the governing French law, InterDigital’s execution of the ETSI FRAND undertaking created a binding *stipulation pour autrui* between itself, the stipulator or receiver of the promise (here, ETSI), and ultimately, upon acceptance, the beneficiaries of the undertaking (here, Nokia).

32. Having irrevocably agreed to license its declared-essential patents including the Combined Asserted Patents on FRAND terms and conditions to manufacturers of standard-compliant products, InterDigital may not, consistent with its agreements, prohibit a manufacturer of standard-compliant products like Nokia that is willing to take a license for any of InterDigital’s patents that are valid, essential, and actually used by Nokia from practicing its declared-essential patents, including the Combined Asserted Patents, in standard-compliant

products. Further, InterDigital is obligated to actually conclude a license with a willing licensee such as Nokia on FRAND terms.

33. Similarly, in the ITU context, a patent holder who makes a written declaration to the ITU stating that it is prepared to grant licenses on FRAND terms makes a contractual commitment for the benefit of potential willing licensees, who are third-party beneficiaries to that commitment. A patent holder making such a declaration to the ITU becomes (i) contractually bound to the ITU; (ii) for the benefit of third party beneficiaries; (iii) to license its declared-essential patent on FRAND terms. Several federal courts have determined that declarations do constitute contractual commitments to license the declared-essential patents on FRAND terms, and that members of the ITU are third-party beneficiaries to such contracts. *See Microsoft Corp. v. Motorola, Inc.*, 854 F. Supp. 2d 993, 999 (W.D. Wash. 2012).); *see also Microsoft Corp. v. Motorola, Inc.*, 696 F.3d 872, 884 (9th Cir. 2012) (holding that the “district court’s conclusions that Motorola’s RAND declarations to the ITU created a contract enforceable by Microsoft as a third-party beneficiary ...and that this contract governs in some way what actions Motorola may take to enforce its ITU standard-essential patents ... were not legally erroneous”); *Apple, Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178bbc, 2012 WL 3289835, at *21-22 (W.D. Wis. Aug. 10, 2012).

3. InterDigital Has Repeatedly Breached its Contractual Commitments.

34. Despite having contractually agreed that it would grant irrevocable licenses to its declared-essential patents, including the Combined Asserted Patents, to manufacturers such as Nokia, InterDigital is now seeking at least three separate exclusion orders before the ITC, a body that can only exclude Nokia from importing standard-compliant products into the United States and cannot set FRAND terms for a license. InterDigital’s ITC complaints

specifically accuse Nokia's products of infringing the Combined Asserted Patents based on their compliance with ETSI and ITU standards. InterDigital had previously declared the Combined Asserted Patents essential ETSI and/or ITU second generation, third generation, and/or fourth generation standards and undertaken FRAND commitments with respect to them. The ITC Investigations subject Nokia to substantial harm both in terms of ongoing litigation costs and the threat of an exclusion order that would prevent Nokia from importing products into the United States. InterDigital's actions are designed to extract supra-competitive royalties from Nokia based on the potential risk of severe business disruption caused by the imposition of injunctive relief. They also constitute an attempt by InterDigital to improperly use its U.S. declared-essential patents to collect royalties beyond their geographic scope – that is, to force Nokia to pay royalties on Nokia's worldwide sales in order to gain a license to the U.S. declared-essential patents.

35. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

36. Significantly, the sole remedy available to a complaining party in a § 1337 proceeding is an “exclusion order,” an injunction that bars a defendant from importing any infringing product into the United States. The ITC is statutorily prohibited from awarding monetary damages. Accordingly, by initiating multiple investigations under § 1337, and by seeking an exclusion order against Nokia, a willing licensee, from importing standard-compliant products into the U.S., InterDigital plainly and unequivocally breached its contractual agreement to grant licenses on FRAND terms and conditions. By failing to provide Nokia with a FRAND offer or to conclude a license on FRAND terms and conditions, failing to seek a determination of FRAND license terms in a competent court or tribunal and pursuing exclusion orders against a willing licensee such as Nokia, InterDigital has also violated its obligation to act in good faith and to deal fairly.

37. The entry of an exclusion order would have significant and irreparable consequences. While Nokia’s U.S. market share is currently comparatively low, it is growing, and growing steadily. Nokia has invested significant resources in the U.S. market. Consequently, Nokia is the leading seller of Windows Phone devices, which, in turn, provide a third ecosystem as an alternative to the duopoly of iOS and Android. This third ecosystem gives both carriers and consumers a much-needed alternative in the smart phone market. If an exclusion order were to go into effect, wireless carriers such as AT&T and T-Mobile will be unable to sell Nokia 3G and 4G products, and the public will be unable to buy them. An exclusion order would unquestionably erode Nokia’s customer loyalty, brand recognition, and customer goodwill, and would harm the Windows operating system’s ability to effectively compete as a third ecosystem.

38. InterDigital's pursuit of an exclusion order is doubly improper because

[REDACTED]

**COUNT I
BREACH OF CONTRACT – SPECIFIC PERFORMANCE**

39. Nokia incorporates by reference the allegations of paragraphs 1 through 38 inclusive, as if fully set forth herein.

40. InterDigital's irrevocable undertakings to ETSI and to the ITU, and manufacturers of standard-compliant products, to permit use of its declared-essential patents, including the Combined Asserted Patents, by manufacturers like Nokia on FRAND terms create contractual agreements. Specifically, InterDigital's undertakings to ETSI create *stipulations pour autrui* — binding and enforceable agreements between InterDigital and ETSI in favor of ETSI members, including Nokia. Nokia is entitled to enforce these agreements under French law as either a direct party or a third-party beneficiary. Likewise, InterDigital's undertakings to the ITU create binding and enforceable agreements that Nokia is entitled to enforce as either a party or a third-party beneficiary.

41. Under the terms of these contracts, InterDigital irrevocably agreed to permit willing licensees like Nokia to practice its declared-essential patents, including the Combined Asserted Patents, under FRAND terms, and to refrain from enjoining willing licensees based upon the alleged use of such patents.

42. InterDigital breached its contractual commitments when it (i) failed to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions; (ii) failed to seek a determination of FRAND license terms and conditions from a competent court or tribunal; (iii) failed to accept FRAND license offers made by Nokia; and (iv) prosecuted three § 1337 infringement actions before the ITC seeking exclusion orders that would enjoin Nokia from importing mobile phones implementing the Combined Asserted Patents. In so doing, InterDigital has also violated the implied covenant of good faith and fair dealing that adheres to every contract.

43. As a result of InterDigital's breach of its contractual agreements, Nokia has been forced to participate in costly and time-consuming ITC proceedings, InterDigital has been and continues to conduct license negotiations using the leverage of an ITC exclusion order (leverage that was supposed to be eliminated with regard to willing licensees like Nokia as a result of InterDigital's binding and enforceable FRAND commitments), and Nokia faces the potential that its mobile phones could be barred from importation into the United States. In the meantime, InterDigital retains the advantage in licensing negotiations using the added leverage given by the threat of an ITC exclusion order that the FRAND commitment was meant to alleviate.

44. Nokia seeks an award of specific performance that directs InterDigital to cease any further participation in the pending ITC Investigations in breach of its contractual commitments, to cease any further pursuit of an exclusion order, and to take such actions as may be necessary to prevent the issuance of an exclusion order, including but not limited to stipulation to the dismissal or stay of the ITC Investigations or enforcement proceedings therein.

45. [REDACTED]

46. [REDACTED]

[REDACTED] Nokia seeks an award of specific performance requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for the Combined Asserted Patents.

47. In the event that the Court does not order InterDigital to make Nokia an offer capable of acceptance for a license to the Combined Asserted Patents on FRAND terms, Nokia seeks an award of specific performance requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for InterDigital's portfolio of United States patents that InterDigital has declared to ETSI or ITU as essential to third generation and fourth generation standards.

48. Nokia has no adequate remedy at law for InterDigital's breach of its contractual obligations to refrain from enjoining willing licensees from importing standard-compliant products based upon the alleged use of declared-essential patents.

COUNT II
PLEAD IN THE ALTERNATIVE – BREACH OF CONTRACT – DAMAGES

49. Nokia incorporates by reference the allegations of paragraphs 1 through 48 inclusive, as if fully set forth herein.

50. InterDigital's irrevocable undertakings to ETSI and to the ITU, and manufacturers of standard-compliant products, to permit use of its declared-essential patents, including the Combined Asserted Patents, by manufacturers like Nokia on FRAND terms create contractual agreements. Specifically, InterDigital's undertakings to ETSI create *stipulations pour autrui* — binding and enforceable agreements between InterDigital and ETSI in favor of

ETSI members, including Nokia. Nokia is entitled to enforce these agreements under French law as either a direct party or a third-party beneficiary. Likewise, InterDigital's undertakings to the ITU create binding and enforceable agreements that Nokia is entitled to enforce as either a party or a third-party beneficiary.

51. Under the terms of these contracts, InterDigital irrevocably agreed to permit willing licensees like Nokia to practice its declared-essential patents, including the Combined Asserted Patents, under FRAND terms, and to refrain from enjoining willing licensees based upon the alleged use of such patents.

52. InterDigital breached its contractual commitments when it (i) failed to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions; (ii) failed to seek a determination of FRAND license terms and conditions from a competent court or tribunal; (iii) failed to accept FRAND license offers made by Nokia; and (iv) prosecuted three § 1337 infringement actions before the ITC seeking exclusion orders that would enjoin Nokia from importing mobile phones implementing the Combined Asserted Patents. In so doing, InterDigital has also violated the implied covenant of good faith and fair dealing that adheres to every contract.

53. As a result of InterDigital's breach of its contractual agreement, Nokia has been forced to participate in costly and time-consuming ITC proceedings, InterDigital has been and continues to conduct license negotiations using the leverage of an ITC exclusion order (leverage that was supposed to be eliminated with regard to willing licensees like Nokia as a result of InterDigital's binding and enforceable FRAND commitment), and Nokia faces the potential that its mobile phones could be barred from importation into the United States. In the meantime, InterDigital retains the advantage in licensing negotiations using the added leverage

given by the threat of an ITC exclusion order that the FRAND commitment was meant to alleviate.

54. Nokia seeks an award of damages resulting from InterDigital's breach of its contractual agreement, including all attorney's fees and costs spent in participating in the ITC Investigations, damages that may result from Nokia's lost sales of mobile handsets in the United States, and any other damages determined to be appropriate, as well as any additional relief that may be appropriate or required to address InterDigital's breaches.

COUNT III
PLEAD IN THE ALTERNATIVE – DECLARATION REGARDING THE
APPROPRIATE FRAND TERMS AND CONDITIONS FOR INTERDIGITAL'S
COMBINED ASSERTED PATENTS OR U.S. DECLARED ESSENTIAL PATENTS

55. Nokia incorporates by reference the allegations of paragraphs 1 through 54 inclusive, as if fully set forth herein.

56. In the alternative to Count I, Nokia seeks a declaratory judgment establishing the proper FRAND license terms and conditions for the Combined Asserted Patents. In the alternative, Nokia request that this Court issue a declaratory judgment establishing the proper FRAND license terms and conditions for InterDigital's portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards.

57. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Nokia is ready and willing to agree to FRAND license terms for any patents that are valid, essential, and actually practiced by Nokia in its products, and to have such terms judicially set if InterDigital refuses to offer such terms.

58. There exists an actual, justiciable controversy between the parties. The parties disagree on FRAND license terms and conditions for the Combined Asserted Patents, InterDigital's portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards and a declaratory judgment is necessary to remedy this dispute.

COUNT IV
PLEAD IN THE ALTERNATIVE – DECLARATION THAT INTERDIGITAL IS
PROMISSORILY ESTOPPED FROM SEEKING AN EXCLUSION ORDER AGAINST
NOKIA AT THE ITC BASED ON THE ALLEGED USE OF ITS U.S. DECLARED-
ESSENTIAL PATENTS

59. Nokia incorporates by reference the allegations of paragraphs 1 through 58 inclusive, as if fully set forth herein.

60. In the alternative to Counts I and II, if this Court determines that InterDigital has not violated its contractual obligations, Nokia seeks a declaratory judgment that InterDigital is barred from enjoining a willing licensee such as Nokia through the ITC with respect to its U.S. declared-essential patents, including the Combined Asserted Patents, due to the doctrine of promissory estoppel.

61. In declaring its patents as essential to ETSI and the ITU and in committing to grant irrevocable licenses to those patents in exchange for FRAND compensation, InterDigital promised manufacturers of standard-compliant products that it would refrain from enjoining manufacturers willing to agree to a license on FRAND terms.

62. As a result of this promise, manufacturers such as Nokia that are willing to license declared essential patents on FRAND terms and conditions reasonably expected that they could begin to manufacture products in compliance with ETSI and ITU standards without fear of an ITC exclusion order preventing them from selling those products. Manufacturers that are

willing licensees also can reasonably expect the ability to negotiate for FRAND license terms for any valid, essential, and actually-utilized patents, without the added leverage granted by the potential for an ITC exclusion order.

63. In reasonable reliance on InterDigital's promise, Nokia manufactured and marketed cellular telephones in compliance with ETSI and ITU standards.

64. If InterDigital is not held to its promise, it will be able to exploit the additional value given to its patents based on their potential inclusion into ETSI and ITU standards by licensing with Nokia and other manufacturers at the point of a loaded gun from a potential ITC exclusion order: if the manufacturers wish to incorporate such standards into their products, they will have to pay InterDigital supra-competitive royalty rates or risk having their products excluded from United States markets entirely.

65. The parties dispute whether InterDigital's FRAND commitment constitutes a promise to which it must be held in order to avoid a manifest injustice and a declaratory judgment is necessary to remedy this dispute. Accordingly, there exists an actual, justiciable controversy between the parties.

**COUNT V
PLEAD IN THE ALTERNATIVE – BREACH OF IMPLIED CONTRACT**

66. Nokia incorporates by reference the allegations of paragraphs 1 through 65 inclusive, as if fully set forth herein.

67. In the alternative to Counts I, II and III, if this Court does not find that InterDigital's commitments to ETSI and the ITU constitute contractual agreements, Nokia seeks relief based on InterDigital's breach of its implied contracts with these SSOs. InterDigital's declarations of essentiality to ETSI and the ITU constitute binding undertakings that Nokia is entitled to enforce. In exchange for its declarations, InterDigital was ensured FRAND

compensation for the use of its essential patents that were valid and actually used by willing licensees such as Nokia.

68. As a result of its FRAND commitments for the Combined Asserted Patents and U.S. declared-essential patents, InterDigital has been able to license those patents to a wider base of licensees than would otherwise have been available. InterDigital now also seeks to use these patents to improperly expand its royalty base to cover worldwide sales and to obtain supracompetitive royalties, and has forced Nokia to spend time and resources participating in the ITC Investigations as a result. Nokia now also faces the potential that its mobile phones could be barred from importation into the United States.

69. Consistent with the implied contract, Nokia seeks an award of specific performance requiring [REDACTED].

70. [REDACTED]
[REDACTED] Nokia seeks an award of specific performance requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for the Combined Asserted Patents.

71. In the event that the Court does not order InterDigital to make Nokia an offer capable of acceptance for a license to the Combined Asserted Patents on FRAND terms, Nokia seeks an award of specific performance requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for InterDigital's portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards.

72. In the event that the Court does not award specific performance due to the breach of these implied contracts, Nokia seeks an award of damages including all attorney's fees

and costs spent in participating in the ITC Investigations, damages that may result from Nokia's lost sales of mobile handsets in the United States, and any other damages determined to be appropriate, as well as any additional relief that may be appropriate or required to address InterDigital's breaches.

COUNT VI
UNFAIR COMPETITION UNDER CAL. BUS. & PROF. CODE § 17200

73. Nokia incorporates by reference the allegations of paragraphs 1 through 72 inclusive, as if fully set forth herein.

74. InterDigital's refusal to provide Nokia with a FRAND offer and to conclude a license on FRAND terms and conditions, and its repeated attempts to obtain injunctive relief before the ITC against a willing licensee such as Nokia, constitute unlawful and unfair business acts or practices, including unfair business practices violating the policy or spirit of the antitrust laws, and otherwise significantly threatening and harming competition in California and elsewhere.

75. InterDigital has committed unlawful business acts or practices by breaching the contracts described above. Each of these acts and practices is unfair in the circumstances when the effect of the act or practice on Nokia is balanced against InterDigital's reasons, justifications, and motives.

76. The acts complained of violate and threaten to violate the policy of the antitrust laws and otherwise significantly threaten and/or harm competition. InterDigital has abused its power by refusing to conclude licenses on FRAND terms and by repeatedly attempting to seek ITC exclusion orders against willing licensees based on the alleged use of its declared-essential patents.

77. As a direct, proximate, and foreseeable result of InterDigital's wrongful conduct, as alleged above, Nokia has suffered harm in California and elsewhere, including the lack of a FRAND license despite InterDigital's undertaking that it would offer such licenses and the expenditure of resources to defend against three separate ITC investigations over a period of six years. Nokia is also threatened by the potential loss of profits, customers, potential customers, loss of goodwill, customer loyalty, and brand recognition threatened by InterDigital's wrongful conduct. Defendant Nokia Inc.'s principal place of business is located in California, and the effects of InterDigital's conduct are felt within that state as a result.

78. As a direct, proximate, and foreseeable result of InterDigital's wrongful conduct, as alleged above, competition has been and will continue to be injured in the market for mobile wireless technology. If InterDigital's conduct is permitted to continue, it will utilize its essential patents to obtain supra-competitive royalty rates, which will be passed on to consumers in California and elsewhere.

**COUNT VII
DECLARATION THAT INTERDIGITAL HAS MISUSED THE COMBINED
ASSERTED PATENTS**

79. Nokia incorporates by reference the allegations of paragraphs 1 through 78 inclusive, as if fully set forth herein.

80. InterDigital has repeatedly attempted to improperly expand the geographic scope of its U.S. patents in order to obtain royalty payments for sales made outside the U.S.

[REDACTED]

[REDACTED]

[REDACTED]

81. InterDigital has now also asserted the Combined Asserted Patents against Nokia in ITC investigations seeking exclusionary relief on no less than three occasions. Numerous federal agencies, including the Federal Trade Commission, the Department of Justice, and the U.S. Patent & Trademark Office, believe that such relief against a willing licensee such as Nokia constitutes unfair and anticompetitive conduct. This conduct constitutes misuse of InterDigital's Combined Asserted Patents and renders these patents unenforceable.

82. The anticompetitive effects of InterDigital's patent misuse include injury to competition within the market for mobile wireless technology and threatened harm to consumers due to the supra-competitive royalties sought by InterDigital.

83. There exists an actual, justiciable controversy between the parties. The parties disagree on whether InterDigital may, consistent with its FRAND commitments, use the threat of an exclusion order under InterDigital's Combined Asserted Patents, which are U.S. patents, to extract royalties on Nokia's worldwide sales including sales of products outside the United States.

84. The controversy is of sufficient immediacy and reality to warrant the issuance of a declaratory judgment.

85. Nokia is entitled to a declaratory judgment that InterDigital has misused the Combined Asserted Patents and, as a result, the Combined Asserted Patents are unenforceable.

COUNT VIII
PLEAD IN THE ALTERNATIVE – DECLARATION THAT INTERDIGITAL HAS
FAILED TO OFFER FRAND LICENSE TERMS

86. Nokia incorporates by reference the allegations of paragraphs 1 through 85 inclusive, as if fully set forth herein.

87. In the alternative to Counts I and II, if the court does not determine that specific performance is appropriate or does not impose damages for breach of InterDigital's FRAND commitments, there is an actual controversy between the parties concerning whether the terms on which InterDigital has offered to license its purported essential U.S. patents are FRAND.

88. The controversy is of sufficient immediacy and reality to warrant the issuance of a declaratory judgment.

89. Nokia is entitled to a declaratory judgment that InterDigital has not to date offered terms and conditions for a license on FRAND terms.

COUNT IX
PLEAD IN THE ALTERNATIVE - DECLARATION THAT NOKIA HAS AN IMPLIED
LICENSE TO PRACTICE THE COMBINED ASSERTED PATENTS OR
INTERDIGITAL'S U.S. DECLARED-ESSENTIAL PATENTS

90. Nokia incorporates by reference the allegations of paragraphs 1 through 89 inclusive, as if fully set forth herein.

91. In the alternative to Counts I and II, and if this Court does not conclude that InterDigital's FRAND commitments to ETSI and the ITU create binding *stipulations pour autrui* or other contractual commitments, Nokia seeks a declaratory judgment that Nokia is entitled to an implied license to the Combined Asserted Patents.

92. Through its declarations to ETSI and the ITU, which committed to provide irrevocable licenses to the declared-essential patents in exchange for FRAND compensation, InterDigital led prospective manufacturers of standard-compliant products to reasonably infer that InterDigital did not intend to enjoin willing licensees based upon the alleged infringement of those patents. The intended purpose of these declarations was to induce such reliance, and InterDigital knew or should have reasonably expected that these promises would induce

manufacturers of mobile wireless devices such as Nokia to develop, manufacture, and/or market products compliant with these standards.

93. Nokia relied on InterDigital's commitments in making its decision to produce third generation and/or fourth generation compliant products.

94. If InterDigital is permitted to proceed with its claim for exclusion orders at the ITC, Nokia will be materially prejudiced. If an exclusionary order is issued, Nokia will be exposed to a significant loss of market share, brand recognition, and customer loyalty, in spite of InterDigital's commitments to accept FRAND compensation and terms for the use of its declared-essential patents. Prior to the issuance of an exclusionary order, as long as the ITC Investigations continue, Nokia (a willing licensee) is forced to negotiate with InterDigital under the threat of an injunction, thus granting undeserved value to InterDigital's patents.

95. There exists an actual, justiciable controversy between the parties. There is a dispute between the parties concerning whether InterDigital's declarations of essentiality to ETSI and to the ITU have created implied licenses permitting Nokia to practice the Combined Asserted Patents or InterDigital's portfolio of U.S. patents that it has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards.

96. This controversy is of sufficient immediacy and reality to warrant the issuance of a declaratory judgment.

97. Nokia is entitled to a declaratory judgment that InterDigital's declarations to ETSI and to the ITU have created an implied license to practice the Combined Asserted Patents or InterDigital's portfolio of U.S. patents declared essential to ETSI's or ITU's third generation and/or fourth generation standards.

COUNT X
PLEAD IN THE ALTERNATIVE - EQUITABLE ESTOPPEL

98. Nokia incorporates by reference the allegations of paragraphs 1 through 97 inclusive, as if fully set forth herein.

99. In the alternative to Counts I and II, and if this Court does not conclude that InterDigital's FRAND commitments to ETSI and the ITU create binding stipulations pour autrui or other contractual commitments, Nokia seeks a ruling that InterDigital is barred from repudiating its promises to grant licenses on FRAND terms and conditions to its portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards.

100. Through its declarations to ETSI and the ITU, which committed to provide irrevocable licenses to the declared-essential patents in exchange for FRAND compensation, InterDigital led prospective manufacturers of standard-compliant products to reasonably infer that InterDigital did not intend to enjoin willing licensees based upon the alleged infringement of those patents. The intended purpose of these declarations was to induce such reliance, and InterDigital knew or should have reasonably expected that these promises would induce manufacturers of mobile wireless devices such as Nokia to develop, manufacture, and/or market products compliant with these standards.

101. Nokia relied on InterDigital's commitments in making its decision to produce ETSI and/or ITU third generation and fourth generation standard-compliant products.

102. InterDigital is estopped from repudiating these promises under the doctrine of equitable estoppel.

103. As a result of its reasonable reliance on InterDigital's promises and the wrongful conduct of InterDigital, Nokia has been harmed and is threatened with irreparable

harm. Nokia has been forced to expend resources resolving this licensing dispute and defending against three separate ITC investigations, and is threatened, in particular, with irreparable loss of profits, loss of customers and potential customers, loss of goodwill and product image, and uncertainty among customers and potential customers.

104. Nokia lacks an adequate remedy at law.

COUNT XI
DECLARATION THAT NOKIA DOES NOT INFRINGE THE ASSERTED PATENTS

105. Nokia incorporates by reference the allegations of paragraphs 1 through 104 inclusive, as if fully set forth herein.

106. An actual controversy exists between the parties with respect to infringement of the Asserted Patents because InterDigital has brought this action against Nokia alleging that Nokia infringes the Asserted Patents.

107. Nokia has not and is not now infringing, contributorily infringing, or inducing infringement of the Asserted Patents.

108. Nokia is entitled to a judgment that Nokia does not infringe any claims of the Asserted Patents.

COUNT XII
DECLARATION THAT THE ASSERTED PATENTS ARE INVALID

109. Nokia incorporates by reference the allegations of paragraphs 1 through 108 inclusive, as if fully set forth herein.

110. An actual controversy exists between the parties with respect to invalidity of the Asserted Patent because InterDigital has brought this action against Nokia alleging that Nokia infringes the Asserted Patents.

111. The claims of the Asserted Patents are invalid under Section 101 of Title 35 of the United States Code as directed to non-statutory subject matter.

112. The claims of the Asserted Patents are invalid under Sections 102 and/or 103 of Title 35 of the United States Code as anticipated or obvious in light of the prior art.

113. The claims of the Asserted Patents are also invalid under the requirements of paragraph 1 of Section 112 of Title 35 of the United States Code due to a lack of written description, failure to particularly point out and distinctly claim the subject matter which is regarded as the alleged invention, and/or failure to set forth a written description sufficient to enable any person skilled in the art to make and use the alleged invention. In addition, the claims of the Asserted Patents are invalid under paragraph 2 of Section 112 of Title 35 of the United States Code because those claims are indefinite in that they contain ambiguous language and/or functional limitations that prevent a person skilled in the art from determining their full scope or meaning.

114. Nokia is entitled to a judgment that the claims of the Asserted Patent are invalid.

COUNT XIII
DECLARATION THAT THE ASSERTED PATENTS ARE UNENFORCEABLE

115. Nokia incorporates by reference the allegations of paragraphs 1 through 114 inclusive, as if fully set forth herein.

116. An actual controversy exists between the parties with respect to unenforceability of the Asserted Patents because InterDigital has brought this action against Nokia alleging that Nokia infringes the Asserted Patents.

117. The Asserted Patents are unenforceable under one or more of the equitable doctrines of unclean hands, equitable estoppel, promissory estoppel, and implied license.

118. Nokia is entitled a judgment that the Asserted Patents are unenforceable.

119. On information and belief, as alleged below, the 151 Patent, including all of the 151 Patent claims asserted against Nokia, is unenforceable under the doctrine of inequitable conduct.

120. In particular, during prosecution of the 151 Patent, at least two of the three named inventors, Marian Rudolf and Stephen Dick, deliberately withheld printed publications demonstrating that the subject matter of one or more claims of the 151 Patent was invented earlier by other participants in the organization responsible for developing the LTE cellular standard. If those publications had been disclosed to the Patent and Trademark Office (PTO), as required by rules of PTO practice, one or more claims of the 151 Patent would not have been allowed.

121. Marian Rudolf, Stephen Dick and Phillip J. Pietraski are listed as inventors on the 151 Patent.

122. The 151 Patent claims priority to a provisional application filed on Nov. 18, 2003.

123. InterDigital Technology Corporation is identified as the assignee on the face of the 151 Patent.

124. Cellular standards, such as the LTE standard that InterDigital accuses of infringing the 151 Patent, are developed by “Standards-Setting Organizations” (SSOs), made up of participants from companies, such as InterDigital and Nokia, that do business in the cellular space.

125. Cellular standards are complex, and govern many aspects of the operation of cellular devices and cellular network equipment. Each section of a standard is developed by a

“working group” with expertise in the technical field for that section. For example, certain working groups have expertise in the efficient use of the radio frequency spectrum, and contribute to the portions of the standard that include the RF specification. Other working groups have expertise in other areas, such as the way in which data is encoded for accurate and efficient transmission over the air.

126. The working group responsible for developing the portion of the LTE standard accused of infringing the 151 Patent is called TSG Radio Access Network Working Group 1 (“TSG-RAN Working Group 1”, hereinafter referred to as the “working group”) and the group met on multiple occasions in 2002 and 2003 to discuss proposals for the standard under development at the time (high-speed uplink packet access). Prior to each such discussion, the members of the working group drafted written submissions outlining their proposals. Those submissions were distributed to all of the members of the working group, including representatives from InterDigital and at least two of the named inventors on the 151 Patent, Marian Rudolf and Stephen Dick.

127. Two of the named inventors, Marian Rudolf and Stephen Dick, also attended many of the Working Group 1 meetings that occurred just before the 151 Patent’s claimed priority date. Marian Rudolf attended Working Group 1 meetings held on October 8, 2002, November 5, 2002, January 7, 2003, February 18, 2003, May 19, 2003, August 25, 2003, October 6, 2003, and November 7, 2003. See Exhibits B-I. Stephen Dick attended Working Group 1 meetings on October 8, 2002, November 5, 2002, August 25, 2003, and November 7, 2003. See Exhibits 1, 2, 6, 8.

128. One of the issues addressed by Working Group 1 was how to efficiently assign network resources to multiple cellular devices, all of which need to send and receive data.

See Exhibit 9.

129. A cellular network shares the available transmission “bandwidth” (i.e., the network’s capacity for sending and receiving data) among multiple cellular devices. The allocation of bandwidth is under the control of the cellular network; when a cellular telephone wants to send and receive data such as emails or text messages, it must first ask the network for a share of the available bandwidth.

130. The network responds to the cellular telephone’s request for bandwidth by sending messages on a special “channel” that is dedicated to sending “control” messages to cellular telephones, sometimes referred to as a control channel.

131. In many cases, the control channel is shared by multiple cellular devices. When multiple cellular devices share a control channel, each device must be able to receive and interpret messages that are addressed to it. The 151 Patent explains how that was done for the downlink control channel in the version of the standard (Release 5) that predates the one accused of infringement in this investigation. In that previous version, called “HSDPA” the downlink control channel sent control messages out to multiple cellular devices, and distinguished among those devices by using a user specific identification. 151 Patent at 1:24–28, 1:54–55 (describing the prior art “HSDPA” method of identifying a specific “WTRU” (UE) in an HS-SCCH transmission, as part of “Release 5 (R5)” WCDMA systems). The user specific identification was used to mask a cyclic redundancy check (CRC) value. *Id.* This description of using a masked, device-specific CRC value is in the “Background” section of the specification of the 151 Patent, and was known in the prior art. *Id.* at 1:24–2:12 (discussing alleged problems with prior art cellular systems, including the prior art HS-SCCH system employing the WTRU-specific CRC value.).

132. It is possible to employ a first control channel for sending a message to a cellular device indicating when it is allowed to download data, also known as “downlink,” and a second control channel to instruct a cellular device when it may upload data, also known as “uplink.”

133. In late 2002 and early 2003, the working group discussed using a single control channel for sending messages to cellular devices about the assignment of both uplink and downlink bandwidth. The single control channel under discussion during that time period would also be shared by multiple cellular devices. It was therefore suggested that, when the network sent out messages on the control channel, each cellular device would successfully interpret only those messages that are addressed to it.

134. In particular, in October, 2002, at a TSG-RAN Working Group 1 meeting attended by Marian Rudolf and Stephen Dick, Motorola submitted a proposal for how to use a single control channel to transmit control messages for both the uplink and downlink directions. See Exhibit 10 [hereinafter the “Motorola Proposal”]. The Motorola Proposal is titled “Uplink enhancements for dedicated transport channels.”

135. The Motorola Proposal suggests using the control channel previously used for downlink transmissions—a control channel called the “HS-SCCH”—to send messages related both to downlink transmissions (on the downlink channel called the “HS-DSCH”) and to uplink transmissions (on an uplink channel called “EUDTC”). The relevant passage is as follows:

“6. Control channel design to support EUDTC:

One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH. The second option is to define a new set of control

channels to support EUDTC operation. Finally, the third option is to use 10 msec frame size. Further, the design of control channels when the UE is in soft-handoff should be addressed.”

Motorola Proposal at 2 (emphasis added).

136. As can be seen from the underlined portion, the Motorola Proposal suggests “piggyback[ing]” the uplink control information onto the existing downlink control channel, thus sharing the same control channel for messages pertaining to transmission in the uplink and downlink directions.

137. The Motorola Proposal also defines how to do so: by having a frame format for transmissions pertaining to the uplink direction that is different from the format used for transmissions pertaining to the downlink direction: “This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.”

138. Finally, the Motorola Proposal makes clear that it will “use the control channels for Rel-5 HS-DSCH” (i.e., the prior art “Release 5” version of the HSDPA standard) to distinguish between particular UEs receiving signals on the shared control channel. As discussed above in the context of the admitted prior art in the Background section of the 151 Patent, the control channel used to govern transmission on the “HS-DSCH” in Release 5 of HSPDA—the HS-SCCH—used a UE-specific CRC value.

139. In sum, the Motorola Proposal teaches using a single control channel for transmitting both uplink and downlink messages, distinguishing between uplink and downlink messages using different message “formats,” and identifying a specific recipient for the message by using a device-specific CRC value as specified in the previous “Release 5” version of the standard.

140. Marian Rudolf and Stephen Dick attended the Working Group 1 meeting at which the Motorola Proposal was presented and received copies of the Motorola Proposal.

Marian Rudolf and Stephen Dick were aware as of October 2002 that the scheme of using a single control channel for both the uplink and the downlink, and distinguishing between uplink control transmissions and downlink control transmissions through the use of different message formats, was already invented by others. See Exhibit 1.

141. In January 2003, at a TSG-RAN Working Group 1 meeting attended by Marian Rudolf, Siemens submitted a proposal for how to use a single “control channel” to transmit messages to multiple cellular devices and grant individual cellular devices permission to transmit in the uplink and downlink directions. See Exhibit 11 [hereinafter the “Siemens Proposal”].

142. The Siemens Proposal discloses using a single control channel to send both uplink and downlink control information. In particular, the Siemens Proposal suggests re-using the preexisting downlink control channel (the “HS-SCCH”) to send messages pertaining both to the downlink channel (the “HS-DSCH”) and to the uplink channel (the “EU-DCH”):

2. Re-use of HS-SCCH

Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel). Consequently, EU-SCCH uses also a 3-slot format and is time-aligned at Node B with HS-SCCH transmissions. This particular format for EU-DCH associated downlink control information allows the same shared control channel to be used for EU-DCH and HSDPA users in time multiplex.

Siemens Proposal at 1 (emphasis added).

143. Moreover, the Siemens Proposal points out that transmissions pertaining to the downlink direction can be distinguished from transmissions pertaining to the uplink direction by making use of pre-existing data structures used to store the “channelisation code-set

field” which previously contained 7 bits of data representing the channelization code set. Id. By using a value for the channelization code set that was “unused” in the previous version of the standard, the Siemens Proposal allows the network to specify to a cellular device (referred to in the Siemens Proposal as “user equipment,” or “UE”) that the transmission relates to the uplink (EU-DCH) direction: “As shown in Fig. 1, the HS-SCCH part 1 provides 8 unused codewords within the channelisation code-set field (denoted as “redundant area” in Fig. 1, [1]), which could be used for EU-DCH downlink signalling.” Id. Figure 1 is a table showing the unused codes, in the “Redundant area”:

		Tree offset indicator (4 bits)															
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cluster code Indicator (3 bits)	0 (1/15)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1
	1 (2/14)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	14	14
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	2	1
	2 (3/13)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	13	13
		1	2	3	4	5	6	7	8	9	10	11	12	13	3	2	1
	3 (4/12)	4	4	4	4	4	4	4	4	4	4	4	4	12	12	12	12
		1	2	3	4	5	6	7	8	9	10	11	12	4	3	2	1
	4 (5/11)	5	5	5	5	5	5	5	5	5	5	5	5	11	11	11	11
		1	2	3	4	5	6	7	8	9	10	11	5	4	3	2	1
	5 (6/10)	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10	10
		1	2	3	4	5	6	7	8	9	10	6	5	4	3	2	1
	6 (7/9)	7	7	7	7	7	7	7	7	7	9	9	9	9	9	9	9
		1	2	3	4	5	6	7	8	9	7	6	5	4	3	2	1
	7 (8/8)	Redundant area								8	8	8	8	8	8	8	8
										8	7	6	5	4	3	2	1

Decoding notation



 Number of multi-codes
 Offset from left/right in code tree (SF=16)

Fig 1: Reuse of the redundant area of HS-SCCH part 1 for downlink signalling of EU-DCH

144. Finally, the Siemens Proposal suggests using the pre-existing HS-SCCH coding format to specify the particular user equipment (“UE”) that is intended to receive the transmission. “A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2. As discussed above, as admitted in the Background

section of the 151 Patent, the existing coding structure for HS-SCCH used a UE-specific CRC value that is generated from Part 1 and Part 2 of the HS-SCCH.

145. In sum, the Siemens Proposal teaches using a single control channel for both uplink and downlink messages, distinguishing between uplink and downlink messages using different message “formats,” and identifying a specific recipient for the message by using the preexisting coding structure of HS-SCCH, as specified in the previous HSDPA version of the standard.

146. Marian Rudolf attended the Working Group 1 meeting at which the Siemens Proposal was presented and received copies of the Siemens Proposal. Marian Rudolf was aware as of January 2003 that the scheme of using a single control channel for both the uplink and the downlink, by distinguishing between uplink control transmissions and downlink control transmissions through the use of the “unused” codewords in the previous version of the standard, was already invented by others. See Exhibit 3.

147. InterDigital filed a provisional application with the PTO on November 18, 2003. See Exhibit 12 [hereinafter the “Provisional Application”]. The Provisional Application is titled “Novel Resource Assignment Channel Configuration for Enhanced Uplink Operation.” *Id.* at 7.

148. Like the Motorola Proposal and the Siemens Proposal, the Provisional Application describes a way to use a single shared control channel to send transmissions pertaining to both the downlink and uplink directions: “The foregoing and other shortcomings of the prior art are resolved by providing a high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel in a shared downlink (DL) radio resource space, and by distinguishing received high speed shared control channel (HS-SCCH) transmissions from

uplink (UL) resource assignment channel transmissions.” Provisional Application ¶ 0018 (emphasis added here and in all cases below).

149. One of the preferred embodiments of the Provisional Application is identical in all relevant respects to the shared control channel described in the Siemens Proposal, and several embodiments use the Motorola Proposal’s approach to distinguishing between the uplink and downlink directions.

150. Both the Motorola Proposal and the Provisional Application describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art Release 5 version of the standard) and UL Resource Assignment transmissions for the uplink. Likewise, both the Siemens Proposal and the Provisional Application describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art version of the HSDPA standard) and UL Resource Assignment transmissions for the uplink (emphasis added in all cases).

Provisional Application	Motorola Proposal	Siemens Proposal
<p>“The foregoing and other shortcomings of the prior art are resolved by providing a <u>high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel in a shared downlink (DL) radio resource space</u>, and by distinguishing received high speed shared control channel (HS-SCCH) transmissions from uplink (UL) resource assignment channel transmissions.” ¶ 0018.</p>	<p>“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to <u>piggyback</u> the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u>” Siemens Proposal at 1.</p>

151. In several embodiments of the Provisional Application, and in the Motorola Proposal, the UE can, in the phrasing used by the Provisional Application, “distinguish” between transmissions related to the downlink and transmissions related to the uplink by looking at the format of the frame transmitted on the shared control channel. In at least the first, second, and third disclosed embodiments of the Provisional Application, the direction for the control signal is specified by the frame format.

Provisional Application	Motorola Proposal
<p>“Pursuant to the techniques of the present invention, any of several methods may be employed to distinguish <u>HS-SCCH transmissions from UL Resource Assignment channel transmissions</u>. These methods include: (a) channel indication by means of selecting one or more ‘impossible’ combinations in <u>channelization code set mapping</u>, (b) inversion of UE-specific cyclic redundancy check (CRC), (c) utilizing different UE-specific masking sequences . . .” Provisional Application ¶ 0020; <i>see generally</i> ¶¶ 0033–0035 (describing “Method 1,” “Method 2,” and “Method 3” for distinguishing between the uplink and downlink channels).</p>	<p>“This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>

152. Likewise, in the first embodiment of the Provisional Application, and in the Siemens Proposal, the UE can distinguish between transmissions related to the downlink and transmissions related to the uplink by using special values in an unused field in the previous version of the HSDPA standard. Both the Provisional Application and the Siemens Proposal explain how this distinguishing can take place: by looking to see whether one of the fields of the transmission—the “channelisation code-set” field—is one of eight codewords that are “unused” or “impossible” in the prior art implementation:

Provisional Application	Siemens Proposal
<p>“Pursuant to the techniques of the present invention, any of several methods may be employed <u>to distinguish HS-SCCH transmissions from UL Resource Assignment channel transmissions</u>. These methods include: (a) channel indication by means of selecting <u>one or more ‘impossible’ combinations in channelization code set mapping . . .</u>”</p> <p>Provisional Application ¶ 0020; <i>see generally</i> ¶ 0033 (describing “Method 1” for distinguishing between the uplink and downlink channels, using “One or more ‘Impossible’ Combinations in the Channelization Code Set Mapping”).</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u>”</p> <p>Siemens Proposal at 1.</p>

153. Indeed, the figure used to depict the “impossible combinations” in the Provisional Application is copied and pasted from the figure used in the Siemens Proposal to depict the “8 unused codewords”:

Provisional Application	Siemens Proposal
<p>FIG. 2</p>	<p>Fig. 1</p>

154. Finally, in both the Motorola Proposal and the Siemens proposal, the shared downlink control channel relies on the same prior art method for confirming which UE a

transmission is directed to that is used in the Provisional Application: using the user-specific identification in the same manner it was used in the preexisting HS-SCCH structure.

Provisional Application	Motorola Proposal	Siemens Proposal
<p>“Confirmation that a demodulated transmission is intended for the UE is obtained using a UE-specific CRC.” ¶ 0025.</p> <p>“The R5 HS-SCCH is sent . . . along with a UE-specific cyclic redundancy check (CRC) (see 3GPP TS25.212).” ¶ 0008 (discussing the HS-SCCH in the prior art HSDPA system).</p>	<p>“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC</u>. This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used.”</p> <p>“A major benefit of the re-use of HS-SCCH channel and coding format is that <u>the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission and receiver implementation is notably simplified.</u>” Siemens Proposal at 1–2.</p>

155. Moreover, both the Provisional Application and the Siemens Proposal argue that transmitting uplink control messages on the same channel already used for downlink control messages has performance and efficiency benefits—namely, the UE can have reduced complexity and better performance because it only needs to monitor a single control channel.

Provisional Application	Siemens Proposal
<p>“In a straightforward extension of existing R5 mechanisms, UL Resource Assignment Channel's for FDD Enhanced UL could be introduced ‘on top’ of existing HS-SCCH's for HSDPA. In other words, a separate set of SF=128 DL channels are configured to contain one or more UL Resource Assignment Channels. With this approach, in a typical HSDPA operation scenario, a UE would then be required to monitor one or several UL Resource Assignment Channels in addition to the up to 4 HS-SCCHs it must already</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. . . . Additionally it decreases UE complexity, since less control channels need to be monitored in cases where HS-DSCH and EU-DCH are used concurrently.” Siemens Proposal at 1.</p>

<p>monitor.” ¶ 0014.</p> <p>“Relative to the prior art approaches described hereinbefore, a high speed shared control channel (HS-SCCH) and an uplink (UL) resource assignment channel that occupy a shared downlink (DL) radio resource space reduces UE complexity increases UE battery efficiency, and permits enhanced DL spreading code usage.” ¶ 0019.</p>	
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156. Thus the Provisional Application, like the Motorola Proposal and the Siemens Proposal, describes using a single control channel for both uplink and downlink messages, distinguishing between uplink and downlink messages using different message formats (including, as in the Siemens Proposal, different values for the “channelization code set” field), and identifying a specific recipient for the message by using the pre-existing HS-SCCH coding structure, which included a device-specific CRC value. And the Provisional Application and the Siemens Proposal cite precisely the same benefits from doing so.

157. The Provisional Application also includes claims. Claim 1 purports to cover the process already disclosed in the Motorola Proposal and the Siemens Proposal:

1. A method for communicating with a user equipment (UE) over a wireless link comprised of a downlink (DL) and an uplink (UL), the method comprising the steps of:

(a) sharing at least a portion of the DL so as to provide a high speed shared control channel (HS-SCCH) and an UL resource assignment channel, and

(b) distinguishing received high speed shared control channel (HS-SCCH) transmissions from uplink (UL) resource assignment channel transmissions.

158. This claim recites the same basic three elements already discussed: a control channel for both “HS-SCCH” and “uplink (UL)” control messages; “distinguishing” transmissions related to the HS-SCCH from transmissions related to the uplink; and “sharing”

the channel among multiple UEs. This claimed process is identical to what is disclosed in the Motorola Proposal and the Siemens Proposal.

159. InterDigital filed the nonprovisional application, which ultimately issued as the 151 Patent, on July 29, 2004. See Exhibit 13. Both the Motorola Proposal and the Siemens Proposal describe preferred embodiments of the 151 Patent. And like the Provisional Application, the 151 Patent includes material taken directly from the Siemens Proposal.

160. In particular, both the 151 Patent and the Motorola Proposal describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art Release 5 version of the standard) and UL Resource Assignment transmissions for the uplink. Likewise, both the 151 Patent and the Siemens Proposal describe using a single control channel that employs conventional HS-SCCH transmissions for the downlink (i.e., the same transmissions used in the prior art version of the HSDPA standard) and UL Resource Assignment transmissions for the uplink.

151 Patent	Motorola Proposal	Siemens Proposal
<p>“The WTRU communicates with the Node-B via a common control channel, the UL channel and the DL channel. The WTRU receives a message from the Node-B via the common control channel. The message includes an indication of whether the message is intended for assigning radio resources to the UL channel or the DL channel.” 2:20–25.</p> <p>“The Node-B 104 is configured to support an HSDPA and EU operation. Therefore, each Node-B 104</p>	<p>“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to <u>piggyback</u> the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u>” Siemens Proposal at 1.</p>

<p>dynamically allocates radio resources for DL and UL transmissions to and from the WTRU 106 through an HS-DSCH and an EU channel, respectively. The radio resources assignment information for both the HS-DSCH and the EU is transmitted through the common control channel 112.” 3:33–39.</p> <p>“High speed downlink packet access (HSDPA) has been developed to increase downlink (DL) efficiency and throughput in universal mobile telecommunication system (UMTS) Release 5 (R5) wideband code division multiple access (W-CDMA) systems. . . . The signaling channel, a high speed shared control channel (HS-SCCH), conveys radio resource allocation information to a plurality of wireless transmit/receive units (WTRUs).” 1:33–36.</p>		
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161. In several embodiments of the 151 Patent, as in the Motorola Proposal, the UE can distinguish between transmissions related to the downlink and transmissions related to the uplink by looking at the format of the frame transmitted on the shared control channel. In at least the first, second, and third disclosed embodiments of the 151 Patent, the direction for the control signal is specified by the frame format.

151 Patent	Motorola Proposal
“In accordance with a first embodiment of the present invention, an indication that a	“This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and HS-

<p>particular radio resource is assigned for a UL transmission is provided by means of one or more of the impossible combinations in the channelization code set mapping in a current HSDPA.” 3:51–55.</p> <p>“In accordance with the second embodiment of the present invention, this WTRU-specific CRC is modified in a unique and deterministic way to indicate that the demodulated transmission is for UL transmission, rather than DL transmission.” 4:13–16.</p> <p>“In accordance with a third embodiment of the present invention, an indication that a particular radio resource is assigned for an EU is provided by means of a WTRU -specific masking sequence.” 4:28–31.</p>	<p>DPCCH.” Motorola Proposal at 2.</p>
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162. Also, as in the Siemens Proposal, the 151 Patent describes distinguishing between transmissions related to the downlink and transmissions related to the uplink, using the channelization code-set field.

151 Patent	Siemens Proposal
<p>“In accordance with a first embodiment of the present invention, an indication that a particular radio resource is assigned for a UL transmission is provided by means of one or more of the impossible combinations in the channelization code set mapping in a current HSDPA. FIG. 2 is a look-up table for channelization code set mapping currently used in the HSDPA.” 3:51–57.</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u>” Siemens Proposal at 1.</p>

163. Figure 2 from the 151 Patent is carried over from Figure 2 of the Provisional Application, which in turn is taken from Figure 1 of the Siemens Proposal.

151 Patent	Siemens Proposal
<p>FIG. 2</p>	<p>Fig. 1</p>

164. Finally, in both the Motorola Proposal and the Siemens proposal, the shared downlink control channel relies on the same prior art method for determining which UE a transmission is directed to that is used in the 151 Patent: preexisting structure of the HS-SCCH and specifically the use of user specific identification (UE-ID), which was used in the preexisting structure to mask the CRC.

151 Patent	Motorola Proposal	Siemens Proposal
<p>“In accordance with a second embodiment of the present invention, an indication that a particular radio resource is assigned for UL transmission is provided by means of a WTRU-specific CRC. <u>Under current HSDPA specifications</u>, a WTRU-specific CRC is contained in an HS-SCCH field 2. A 16-bit CRC is computed from the information to be transmitted, and the computed CRC is masked with a unique 16-bit WTRU identity (ID). The masked CRC is transmitted to</p>	<p>“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC</u>. This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.</p>	<p>“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used.”</p> <p>“A major benefit of the re-use of HS-SCCH channel and coding format is that <u>the detection based on the implicit UE-ID and decoding of part 1 is identical for HSDPA and EU-DCH data transmission</u> and receiver implementation is notably simplified.” Siemens Proposal at 1–2.</p>

a WTRU 106 as a WTRU-specific CRC.” 4:4–12.		
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165. As with the Provisional Application, the 151 Patent argues that transmitting uplink control messages on the same channel already used for downlink control messages has the performance and efficiency benefits discussed in the Siemens Proposal—namely, the UE can have reduced complexity and better performance because it only needs to monitor a single control channel.

151 Patent	Siemens Proposal
“Thus, it is possible to introduce a separate set of SF=128 DL channels as UL resource assignment channels. With this approach, a WTRU would be required to monitor one or more UL resource assignment channels in addition to the HS-SCCHs for an HSDPA operation. Although this approach is conceptually simple, there are many disadvantages with this scheme, such as WTRU complexity, WTRU battery efficiency, and DL spreading code usage.” 2:3–9 (describing disadvantages of using two separate control channels, which are alleged to be overcome by the claimed invention).	“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. . . . Additionally it decreases UE complexity, since less control channels need to be monitored in cases where HS-DSCH and EU-DCH are used concurrently.” Siemens Proposal at 1.

166. Moreover, at least asserted independent claims 1 and 16 purport to cover the process already disclosed in the Motorola Proposal and in the Siemens Proposal.

167. The Motorola Proposal and the Siemens Proposal disclose a control channel for both downlink and uplink channel assignment information:

Claims	Motorola Proposal	Siemens Proposal
1. A method for utilizing channel assignment information for an uplink shared channel or a downlink	“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback</u>	“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the

shared channel, the method comprising: a wireless transmit/receive unit (WTRU) receiving downlink control information including downlink or uplink channel assignment information via a same physical downlink control channel, both downlink channel assignment information and uplink channel assignment information being received via the same physical downlink control channel;	<u>the control information required for EUDTC</u> . This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.	downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u> ” Siemens Proposal at 1.
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Claims	Motorola Proposal	Siemens Proposal
16. A wireless transmit/receive unit (WTRU) for utilizing channel assignment information for an uplink shared channel or a downlink shared channel, the WTRU comprising: a receiver configured to receive downlink control information including downlink or uplink channel assignment information via a same physical downlink control channel, both downlink channel assignment information and uplink channel assignment information being received via the same physical downlink control channel;	“One of the options for control channel design of EUDTC is to <u>use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC</u> . This can be achieved by defining an additional frame format for HS-SCCH and HS-DPCCH.” Motorola Proposal at 2.	“Re-using the existing HSDPA downlink control channel (HS-SCCH) is a means to alleviate the downlink code resource problem by providing trunking gain between EU-DCH and HS-DSCH users. <u>This is achieved by reusing the downlink HS-SCCH also for downlink control information of EU-DCH (denoted as EU-SCCH in the sequel).</u> ” Siemens Proposal at 1.

168. The Motorola Proposal and the Siemens Proposal disclose “determining” whether the downlink control information is intended for the UE:

Claims	Motorola Proposal	Siemens Proposal
1. ...the WTRU determining whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and <u>HS-DPCCH</u> .” Motorola Proposal at 2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for <u>HSDPA</u> and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

Claims	Motorola Proposal	Siemens Proposal
16. ... a controller configured to determine whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining an additional frame format for <u>HS-SCCH</u> and <u>HS-DPCCH</u> .” Motorola Proposal at 2; <i>see</i> 151 Patent at 1:24–2:12 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. . . . A major benefit of the re-use of HS-SCCH channel and coding format is that the detection based on the implicit UE-ID and decoding of part 1 is identical for <u>HSDPA</u> and EU-DCH data transmission and receiver implementation is notably simplified.” Siemens Proposal at 1–2; <i>see</i> at 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

169. As discussed above, it was known in the admitted prior art (described in the 151 Patent) that the existing “HSDPA” specifications use a WTRU-specific CRC in the “HS-SCCH” channel to identify transmissions intended for a particular WTRU.

Claims	Meaning of “HSDPA” to a Person of Ordinary Skill in the Art
1. ...the WTRU determining whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“Under current HSDPA specifications a WTRU-specific CRC is contained in an HS-SCCH field 2.” 151 Patent 4:7–8; <i>id.</i> 1:49–55 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU); <i>id.</i> 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

Claims	Meaning of “HSDPA” to a Person of Ordinary Skill in the Art
16. ... a controller configured to determine whether the downlink control information is intended for the WTRU based on WTRU identity (ID)-masked cyclic redundancy check (CRC) parity bits...	“Under current HSDPA specifications a WTRU-specific CRC is contained in an HS-SCCH field 2.” 151 Patent 4:7–8; <i>id.</i> 1:49–55 (indicating that the “HS-SCCH” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU); <i>id.</i> 1:24–2:12 (indicating that “HSDPA” uses a CRC value specific to a WTRU to distinguish transmissions to that WTRU).

170. The Motorola Proposal and the Siemens Proposal disclose “determining” whether the channel assignment information is for uplink or downlink and utilizing that information.

Claims	Motorola Proposal	Siemens Proposal
1. ... if so determining whether the channel assignment information is for assigning radio resources for	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is

the uplink shared channel or the downlink shared channel; and the WTRU utilizing the radio resources for the uplink shared channel or the downlink shared channel.	the control information required for EUDTC. This can be achieved by defining <u>an additional frame format for HS-SCCH and HS-DPCCH.</u> ” Motorola Proposal at 2.	re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u> ” Siemens Proposal at 1.
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Claims	Motorola Proposal	Siemens Proposal
16. ... determine whether the channel assignment information is for assigning radio resources for the uplink shared channel or the downlink shared channel, and utilizing the radio resources for the uplink shared channel or the downlink shared channel.	“One of the options for control channel design of EUDTC is to use the control channels for Rel-5 HS-DSCH to piggyback the control information required for EUDTC. This can be achieved by defining <u>an additional frame format for HS-SCCH and HS-DPCCH.</u> ” Motorola Proposal at 2.	“A further simplification of the UE implementation is possible if exactly the coding format of HS-SCCH part 1 is re-used. This is possible if the signalling payload is four bits or less. As shown in Fig. 1, the HS-SCCH part 1 provides <u>8 unused codewords</u> within the channelisation code-set field (denoted as ‘redundant area’ in Fig. 1, [1]), <u>which could be used for EU-DCH downlink signalling.</u> ” Siemens Proposal at 1.

171. On information and belief, but for the applicants’ deliberate decision to withhold the Motorola Proposal and the Siemens Proposal from the 151 Patent examiner, the PTO would not have allowed at least asserted claims 1 and 16 of the 151 Patent. The Motorola Proposal and the Siemens Proposal, by themselves or in combination with the admitted prior art, disclose each and every element of these claims—indeed, the Siemens Proposal teaches the specific method of distinguishing between uplink and downlink used in an embodiment of the 151 Patent, and describes that method using precisely the same figure.

172. On information and belief, the decision to withhold the Motorola Proposal and the Siemens Proposal was deliberate, and made with fraudulent intent. At least inventors Marian Rudolf and Stephen Dick were specifically aware of the Motorola Proposal, as they attended the Working Group 1 meeting at which the Motorola Proposal was presented. At least inventor Marian Rudolf was specifically aware of the Siemens Proposal, as he attended the Working Group 1 meetings at which the Siemens Proposal was presented. In addition, 3GPP working group documents for any given meeting are distributed prior to the meeting to the appropriate working group or to those persons registered as regular participants—including other named inventors on the 151 Patent. Given that multiple inventors were actively involved with TSG-RAN Working Group 1 and regularly attended Working Group 1 meetings, they were clearly aware of the Siemens Proposal and the Motorola Proposal.

173. The inventors' awareness of the Motorola Proposal is also evident from the inclusion of a related Motorola submission in the cited prior art for the 151 Patent. In particular, the cited prior art for the 151 Patent includes a publication titled "3GPP TSG RANWG 1 Tdoc R1-02-1350, Motorola, 'Design Considerations for Enhanced Uplink Dedicated Channel,' Shanghai, China, Nov. 2002." 151 Patent at Page 2. The 1350 proposal cites the Motorola Proposal discussed above. See Exhibit 14 at 1, 5.

174. The inventors' awareness of the Siemens Proposal is also evident from the Provisional Application and the specification of the 151 Patent themselves, which (as already discussed) take the idea of using the "unused" values of the channelization code-set field and the figure used to illustrate that idea directly from the Siemens Proposal.

175. On information and belief, knowing that disclosing the Motorola Proposal and /or the Siemens Proposal would prohibit obtaining a patent, at least inventor Rudolf and

inventor Dick made the conscious choice not to disclose the prior art to the PTO. The inventors disclosed several working group documents to the Examiner from other meetings attended by the inventors and occurring around the same time as the Motorola Proposal and the Siemens Proposal—including the related 1350 proposal—but at least Marian Rudolf and Stephen Dick chose not to disclose the Motorola Proposal and the Siemens Proposal to the PTO.

176. For example, both Marian Rudolf and Stephen Dick attended the Working Group 1 meeting in Shanghai, China, held November 2002, and disclosed the following working documents associated with this meeting to the PTO: (1) Tdoc R1-02-1277, Nokia, “Two Threshold Node B Packet Scheduling,” Shanghai, China, Nov. 2002; (2) Tdoc R1-02-1350, Motorola, “Design Considerations for Enhanced Uplink Dedicated Channel,” Shanghai, China, Nov. 2002; and (3) Tdoc R1-02-1277, Nokia, “Two Threshold Node B Packet Scheduling,” Shanghai, China, Nov. 2002. See Exhibit 2. However, Marian Rudolf and Stephen Dick attended the Working Group 1 meeting preceding the Shanghai meeting, held October 2002 in Espoo, Finland, and chose not to disclose the highly relevant Motorola Proposal. And Marian Rudolf attended the Working Group 1 meeting following the Shanghai meeting, held January 2003 in San Diego, California, and chose not to disclose the highly relevant Siemens Proposal. See Exhibit 3.

177. The deliberate choice by at least Marian Rudolf to use material taken from the Siemens Proposal in the first described embodiment of the 151 Patent, and the choice to disclose to the USPTO other Working Group materials while withholding the Siemens Proposal, demonstrate fraudulent intent. The deliberate choice of at least Marian Rudolf and Stephen Dick to disclose certain Working Group submissions, including the 1350 proposal, while withholding the directly relevant Motorola Proposal, demonstrates fraudulent intent. The pattern of

withholding multiple prior art references that disclose the use of a single control channel and the other requirements of at least claims 1 and 16 of the 151 Patent further demonstrates fraudulent intent. On information and belief, the inventors, including at least Marian Rudolf and Stephen Dick, withheld the Motorola Proposal and the Siemens Proposal with the intent of hiding from the PTO that the alleged inventions of at least claims 1 and 16 of the 151 Patent were not invented by the named inventors, but rather were taken from the prior work of others. As discussed above, but for the inventors' failure to disclose the Motorola Proposal and the Siemens Proposal, at least claims 1 and 16 of the 151 Patent would not have issued.

178. Nokia is continuing to obtain and review information related to the large family of U.S. and foreign patents and publications related to the Asserted Patents, and accordingly, Nokia intends to set forth further allegations regarding the inequitable conduct associated with the procurement of the 151 Patent as discovery continues.

179. Nokia is entitled a judgment that the 151 Patent is unenforceable by reason of InterDigital's inequitable conduct in prosecuting the application thereof in the United States Patent and Trademark Office.

PRAYER FOR RELIEF

WHEREFORE, Nokia respectfully requests that this Court:

A. Order that InterDigital specifically perform its contractual obligation to not seek ITC exclusion orders against willing licensees such as Nokia based upon the alleged use of its United States declared-essential patents by ceasing any further participation in the ITC Investigations, ceasing any further pursuit of an exclusion order, and to take such actions as may be necessary to prevent the issuance of an exclusion order including seeking a stay of the ITC proceedings pending resolution of Nokia's claims in this action;

B. Order that InterDigital specifically perform its contractual obligation to grant a license on FRAND terms to a willing licensee [REDACTED] or, in the alternative, requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for the Combined Asserted Patents, or in the alternative, requiring InterDigital to submit to Nokia a license offer that is capable of acceptance by Nokia for a license on FRAND terms and conditions determined by the Court for InterDigital's portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards;

C. Issue an injunction preventing InterDigital from participating in any International Trade Commission investigation or otherwise enjoining Nokia in any other proceeding based on the alleged usage of its U.S. declared-essential patents including the Combined Asserted Patents;

D. In the alternative, issue a declaratory judgment setting the proper FRAND terms and conditions, if any, for use of the Combined Asserted Patents or in the alternative for InterDigital's portfolio of United States patents that InterDigital has declared to ETSI and/or ITU as essential to third generation and/or fourth generation standards;

E. In the alternative, issue a declaratory judgment that InterDigital is barred from injunctive relief through the International Trade Commission or through the federal courts against Nokia with respect to its U.S. declared-essential patents including the Combined Asserted Patents due to the doctrine of promissory estoppel;

F. Issue a declaratory judgment that InterDigital's unfair and anticompetitive conduct constitutes patent misuse and, as such, has rendered the Combined Asserted Patents

unenforceable;

G. In the alternative, issue a declaratory judgment that InterDigital's license offers to Nokia have not complied with InterDigital's FRAND licensing commitments;

H. In the alternative, issue a declaratory judgment that Nokia has an implied license to practice the Combined Asserted Patents or InterDigital's U.S. declared-essential patents due to InterDigital's conduct before ETSI and the ITU;

I. In the alternative, issue a declaratory judgment that InterDigital is estopped from acting in contravention to its commitment to license the Combined Asserted Patents and U.S. declared-essential patents on FRAND terms.

J. Issue a declaratory judgment that Nokia does not infringe any claim of the Asserted Patents;

K. Issue a declaratory judgment that the claims of the Asserted Patents are invalid;

L. Issue a declaratory judgment that the claims of the Asserted Patents are unenforceable;

M. In the alternative, award Nokia damages for InterDigital's breach of express or implied contract, in an amount to be determined;

N. Award Nokia any and all other and further relief as this Court may deem just and proper.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP

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April 1, 2013

CERTIFICATE OF SERVICE

I hereby certify that on April 1, 2013, I caused the foregoing to be electronically filed with the Clerk of the Court using CM/ECF, which will send notification of such filing to all registered participants.

I further certify that I caused copies of the foregoing document to be served on April 1, 2013, upon the following in the manner indicated:

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